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Original Articles.

• SOME POINTS IN THE ÆTIOLOGY AND TREATMENT OF PUERPERAL SEPTIC DISEASE.

BY

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I PROPOSE in the following paper to mention one or two points that have struck me in the treatment of a series of cases, 158 in number, that have come under my care during the last five years. They have all been notified to the Medical Officer of Health in the first instance under the provisions of the Public Health Act, and then admitted to Monsall Hospital. Owing to the courtesy of Dr. Niven, Medical Officer of Health, and of Dr. Margaret M. Smith, Medical Officer to the Midwives Supervising Committee, I have been furnished with a complete history of the events which have preceded the infection of the case in each instance. Bacteriological examinations have been made of the contents of the uterus, and, in certain cases, of the blood also, in the laboratory of the Hospital after the admission of the patient.

I do not intend to refer, except in a general way, to the statistics of the cases, and must limit myself to certain points concerning the methods of infection, and subsequently to details of the treatment adopted.

A good deal has been written about the ætiology of Puerperal Septicæmia from the point of view of the bacteriologist, but, in my opinion, the tendency on the part of the workers—I speak generally—to jump to clinical conclusions—often from a laboratory study of a few cases only—

• Specially contributed to *The Antiseptic*.

is hardly justified. In the case of Puerperal Septicæmia, bacteriology is a good servant, but a bad master.

It is, I think, to this irresponsible variety of bacteriology that we are also indebted for one impression that undoubtedly exists in the minds of a good many medical men and their teaching is reflected in the actions of a much larger number of midwives and nurses who actually come in contact with the patients, *viz.*, that the infection in Puerperal Sepsis invariably comes from without. This is sometimes, though by no means necessarily or invariably the case.

Let us see what actually happens. It has been shewn by Menge, Doderlein, and others that the vagina during healthy pregnancy is not sterile, but contains, amongst other organisms, streptococci. These, however, are saprophytic and non-virulent when they exist in the normally acid secretion of the healthy (parturient) vagina: moreover, they actually themselves destroy other organisms which are experimentally introduced. If, however, the vaginal secretion becomes alkaline, or if they find their way into the alkaline uterine cavity they may become parasitic and virulent. This change also occurs when they come in contact either with a fresh wound or with necrotic tissue. A vagina that has been douched takes 13 hours longer to rid itself of experimentally introduced organisms than one that is otherwise left alone.

The bearing of these facts is that Puerperal Fever from streptococcal invasion, may occur without the necessity for the introduction of any extraneous organisms, when the vaginal streptococci are carried up into the uterus, or when a wound of the cervix or vagina occurs or is produced during labour, or when necrotic products of conception are retained in the genital canal.

There are two main methods by which the vaginal streptococci are transplanted into the uterus: firstly, by too frequent vaginal examinations—even with sterile hands—and, secondly, by the use of vaginal douches during and after labour. Wounds of the cervix and of the vagina that result in puerperal septicæmia are often due to the application of forceps, and the retention of placenta is, I need hardly say, the result of ignorance or carelessness.

With regard to the first point, I certainly think that in the instruction of the modern midwife too much stress has been laid on the use of antiseptics for the hands and for the preparation of the patient, and too little on the fact that vaginal examinations should be made as seldom as possible. The impression in the mind of the modern fully trained nurse is certainly that provided she is careful to disinfect her hands and the

patient, the more examinations she makes the better. She does not realise that she may produce Puerperal Sepsis by hands that are surgically clean.

Regarding the use of forceps, it is only necessary to point out that they are frequently applied for the convenience of the practitioner only. Even when this is not the case, they are often used before the os is fully dilated—in fact, as a substitute for patience or a hypnotic. For their use during the first stage of labour there can be little, if any justification.

The main point of all, however, is that the routine use of the vaginal douche should be discontinued, and it certainly should never be employed by the nurse on her own responsibility. Even when a douchecan and a sterile nozzle are used, vaginal organisms may be washed up into the uterus, and when we reflect that these injections are often given by a syringe of the Higginson type—which cannot be rendered sterile—the danger is even more apparent. I am most strongly of opinion that to the use of the vaginal douche we must attribute the greater part of the Puerperal Septicæmia that we see in this country.

Though the streptococcus is the commonest organism found in cases where infection has occurred at the time of delivery, the bacillus coli communis has also to be reckoned within the same connection. This organism normally exists in and around the vulval outlet, and it may be similarly carried into the uterus by the examining finger or by the vaginal douche. In the uterus it generally gives rise to a particularly severe type of infection, and one that is very liable, in my experience, to be followed by pyæmia with multiple abscesses.

All the preceding remarks have applied to parturition infection, *i.e.*, that which occurs during delivery. This, however, is not the most common time at which infection actually takes place, the puerperal infection where the onset is on the third or later day after delivery being the more common. I doubt very much (for various reasons) whether the incubation period of infection with either the streptococcus or the bacillus coli communis is longer than 48 hours, and so onset on the third or later day would suggest that any procedure that occurred during delivery must not be held responsible for subsequent illness.

For what takes place at delivery the practitioner is usually held responsible if he is present: while even this is a mistake in that there is almost invariably a nurse or midwife there also, who makes vaginal examinations herself, and she probably with greater frequency than the medical attendant, he certainly cannot be blamed for what occurs afterwards, seeing that unless something abnormal takes place he does not

touch the genitalia at all after delivery. Yet he usually is so blamed, and he often has to suffer severely and unjustly.

The main factors in puerperal infection are the neglect to keep the genitals covered with an efficient dressing, and the washing up of organisms with the vaginal douche. *Bacillus coli communis* occurs more commonly in the uterus in puerperal than in parturition infection: this variety is particularly difficult to control administratively in this country for so many cases are attended by midwives alone, and it is not possible by any method of supervision to ensure that they shall not use the vaginal douche, or even that they shall give it with a clean instrument. Midwives are all obliged to carry with them a Higginson syringe, and there can be little doubt that it is often employed both for vaginal and rectal injections. The fatal point is that it is less trouble to use than the vaginal douche.

Returning for a moment to the subject of parturition infection, I may perhaps mention a case that I have seen recently: a primipara was in labour, and after this had lasted 12 hours (the patient being not in the least exhausted) forceps were applied, and there can be little doubt in this case that the os was not fully dilated at that time; the perineum was torn into the rectum, and the cervix badly lacerated also. As usual, the placenta was examined, and found to be intact: directly after the delivery of the placenta, a vaginal douche was given by the medical attendant: within 48 hours the patient was suffering from a severe attack of Puerperal Sepsis, for which she was admitted to Monsall Hospital.

When I saw her, the general condition was very bad, and on examination I found the lacerations aforesaid and also withdrew a larger quantity of placental tissue from the interior of the uterus. Swabbings from the uterine wall gave the *bacillus coli communis* in pure culture. There can be little doubt that the administration of a vaginal douche, the rectum and vagina being at that time potentially one cavity, was responsible for the infection in this case.

For the administration of a vaginal douche by the nurse or midwife on her own responsibility, there can be no excuse, inasmuch as any symptoms which might render it necessary are just those in which she would do wisely—and in the case of a midwife attending alone she is now by the rules of the Central Midwives Board compelled—to send for medical assistance.

*THE USE OF PREPARED MILKS AND PATENT FOODS IN INFANT FEEDING.

BY

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Much unnecessary suffering would be avoided, if it were generally recognized that, condensed milks and patent foods should, only under exceptional circumstances and under medical direction, enter into the dietary of an infant under six months of age—under certain circumstances and especially when there is an inability to digest the curd, some of the condensed milks are of great use, when all modifications of cow's milk have failed. It must be understood that their utility is only temporary and they cannot be regarded as permanent substitutes for cow's milk—as prepared milks and foods vary very much in their composition and consequently in their suitability, it is necessary to have some idea of their suitability. I propose to adopt the following classifications.

- I. Foods prepared from cow's milk.
 - (a) Condensed milk without added sugar.
 - (b) Condensed milk with added sugar.
 - (c) Peptonized milk.

Condensed milk is milk from which a large proportion of water has been removed by evaporation with the aid of a greater or less amount of heat under reduced pressure. Many of the condensed milks are prepared from skim milk and contain only a very small percentage of cream with a large proportion of added sugar, which acts as a preservative. Such milks should under no circumstances be used as substitutes for cow's milk. There are two kinds of condensed whole milk, the sweetened and unsweetened. The unsweetened is the one to be used, as the sweetened has to undergo a considerable dilution to make it at all palatable and then is very poor in proteid and fat. There are two good brands—the local brand which is unsweetened and the milk maid which is sweetened.

The following is an analysis of the *local* brand.

Proteid 8.3. Fat 12.4. Milk sugar 16.

If this milk be diluted with two parts of water, the resulting mixture corresponds giving accurately with a sample of cow's milk.

Milk maid brand is a sweetened milk with a fair percentage of fat; the large percentage of added sugar is an objection, as it makes the milk

so very sweet. It has the advantage however of keeping fresh for a longer period when opened. Its percentage composition is,

Proteid 9.7. Fat 11. Milk sugar 14.6. Cane sugar 38.7.

Condensed milk is sold by Messrs. Savory and Moore—it is a good preparation—but can only be given for a limited period.

2. Foods prepared from cow's milk and modified cereals, contain starch only partially converted into sugar.

(a) Much unchanged starch,—Nestles.

(b) Largely converted into soluble carbohydrate, (Allen and Hanbury).

(c) Milk foods which have been partially peptonized or contain ferments which become active on the addition of warm milk or water, and contain entirely or partially converted starch—*e.g.* Benger's or Horlick's malted food.

3. Prepared from modified cereals only—

(a) Starch is unconverted, *e.g.* Robinson's prepared Barley, Fames, or Neave's food.

(b) Starch completely changed—Mellin's or Horlick's.

(c) Starch partially changed by diastase, Savory and Moore's.

Unsweetened condensed milk may be used as the basis of a food mixture in certain cases of obstinate dyspepsia, where there is an inability to digest the proteids of fresh milk, however altered. The Ideal brand is one of the best condensed whole milks, as it is unsweetened. Its deficiency in fat must be supplied by the addition of cream, and the antiscorbutic element supplied by the addition to the dietary of some grape or orange juice. The tins should be opened, according to instructions, and kept in a cool place standing in a basin of cold water in order to prevent the milk going sour. Classes 2 and 3 cannot however be used in the dyspepsia of young infants, as they contain far too much converted or unconverted carbohydrate. They do however form useful helps in the case of infants above six months of age. They should at first be given only once daily, if the infant continue to thrive, twice daily. It cannot be too strongly insisted upon, that carbohydrate cannot replace cream as a heat producing and bone forming material. Large infants with a tendency to anæmia, are often the products of a diet rich in carbohydrate but poor in fat. It is the duty of the medical attendant to insist on the importance of a proper quantity of cream in the infant's dietary. Butter will often be better taken by infants than any other form of fat, when extra fat is indicated.

The most disastrous effects may follow the use of the third class of foods during the first six months of life, before the amylolytic ferments in the saliva and pancreatic juice are *active*. Young children largely fed on this class of food are often wasted, suffer from great flatulence and are either constipated or suffer from diarrhoea with offensive motions. They are often rickety and under weight, and, if the subjects of any epidemic disease, are very likely to die. Foods such as Mellin's and Benger's are most useful, over six months of age. From a consideration of the above points, we may come to the following conclusions; (a) that only under exceptional circumstances is any prepared milk or food admissible under the age of six months; (b) that only condensed *whole* milks should be used; (c) that the *unsweetened* brands are to be preferred; (d) that all are deficient in fat and the antiscorbutic substance; (e) that foods containing much converted or unconverted starch should only be used after six months of age.

* DISORDERS OF MENSTRUATION.

BY

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At a certain period of female life everywhere, varying generally, from the twelfth to the fifteenth year, and known as that of puberty, a sanguineous discharge occurs from the uterus, and continues until the forty-fifth or forty-eighth year of age. This flow of blood is the outward and visible sign of the completion of the ovarian function of ovulation, or the full development of a Graafian vesicle, found near the surface of the ovary, its rupture, and the escape of the ovum. These functional disorders of menstruation are divided into three classes. 1. Amenorrhœa, scanty or suspended flow. 2. Dysmenorrhœa, or difficult menstruation; and 3. Menorrhagia, or excessive menstruation. Each will require a separate, though brief notice. The first may be suspended or fall under the following circumstances. Either from cold, damp, wet feet, sedentary habits, dietetic irregularities, fatigue, debility, fevers, acute disease, mental anxiety, severe anæmia, lung or kidney mischief, the monthly menstrual functions may be checked. Medical men are sometimes deceived by patients who all the time probably know they are pregnant. The long list of emmenagogues includes Actea, Aloes, Asafoetida, Borax, Camboge, Cantharides, Castor, Cinnamon, Pennyroyal, Ergot, Iron, Juniper, Chloride of Ammonium, Bromide or Iodide of Potassium, Rubia Tinctorium, Saffron, Ruta, Savin, Senega-rue and Savin being most efficacious. Some remedies are

• Specially contributed to *The Antiseptic*.

inert, others are not procurable, others deteriorate by climate. Medicines given by mouth frequently cause nausea, diarrhoea, local distress, irritability of the bladder, dragging pain of the back, perhaps piles, so injections or pessaries are preferable; at the same time constitutional defects must be repaired and bodily clothing may be capable of improvement. Ten grains of Aloes barbadoes in 3 ounces of tepid milk, might be injected twice a day when the menstrual flow is over due, until it re-appears or straining becomes intolerable; else every night introduce a pessary, the ingredients for eight consisting of aloes 60 grains, savin oil a drachm, olive oil two drachms and cocoa butter an ounce, misce.

Divide 6 grains of Podophyllin, 24 grains of Extract Hyoscyami and Pil. aloes et myrrhæ, 30 grs. into twelve pills, one at bed time for two or three nights. The introduction of Sponge tents well saturated with aloes extract sol. will often be useful. Hip baths, feet in hot mustard and water, injections of hot gin and water may be of some good. Pil. aloes et myrrh, Pil. aloes et Ferri, Tincture aloes Comp. are all good, yet liable to provoke piles by acting on the lower bowel. Another formula consists of Pil. aloes et myrrh grs. 3, Ferri Sulph. exsic gr. 1 extract Nucis Vom. gr. $\frac{1}{4}$ in pill three times daily also Ferri Sulph. 24 grains, aloes socot 6 grs. Pulv. Canellæ grs. 12, ol. sabinæ m. 6. Terebinth q. s. divided into 18 pills, one two or three times a day.

By all accounts, the ergotine granules as suggested by Kirby are said to answer. Another pill consists of sulphate of Iron grs. 2, quinine one grain, Aloes $\frac{1}{2}$ grain taken once or twice a day with food.

In certain cases the following mixture will afford relief.

R. Extract ergota liquid	3 drs.
Tinct Serpentaria	6 drs.
Ol. Ruta	16 minims
Ol. Sabina	16 minims
Tinct Cinnamon	6 drs.
Mucilage	ad 8 ozs. misce ft.

Mist. A sixth part once or twice a day.

Meanwhile the patient should keep very quiet. Should there be any pain over the abdomen, back or bladder, it is very easy to use a liniment of opium, chloroform and Belladonna to relieve local distress. The inhalation of chloroform may be necessary. Our experience so far inclines mostly to try injections, pessaries and Sponge tents. Though savin causes agitation, Syncope, delirium, and fever, yet it succeeds when everything else fails, other emmenagogues not already mentioned are Bland's pills, one three times daily and apiol, the active principle of the seeds of

common Parsley, 3 to 6 minims of the oily liquid in Syrup else in capsules taken night and morning. Recommended for suppressed menstruation depending on malarial debility. It is curious that apiol should not be more frequently tried in India, given just before the regular period after a course of suitable tonics and regimen.

(To be continued.)

Our Contemporaries.

MEDICINE.

Abstract of a Lecture on the Nervous System in old Age.

BY

SIR WILLIAM R. GOWERS, M.D., F.R.S.

AGE involves senility, early or mature, general or unequal. The nutrition of the functional elements of the tissues slowly fails. Long before change is visible it is revealed, directly or indirectly, by altered function. The effect of life is the due replacement from the adjacent plasma of the molecules lost in all activity. Memory first reveals the imperfect nutrition in the structures that form its physical basis; fresh activities leave less change and cannot be reproduced so readily; in Ribot's words, "the new perishes, the old endures." Only when molecular change has become relatively colossal can the microscope detect it. The substance of the nerve-cells lessens, the staining Nissl bodies within them become fewer, their processes shrink. The fibres of the brain, especially the association fibres, and those of the spinal cord, become attenuated and often show segmental degeneration. The neuroglia, the supporting connective tissue element of the nerve centres, increases, as it always does, in weed-like fashion, when the nerve structures waste. It increases especially around the vessels and beneath the membranes, and it undergoes contraction, like all supporting tissues of its class.

Hence the brain and cord become firmer, and less in bulk. The convolutions shrink, the ventricles enlarge, and the perivascular spaces become wider. So large may these spaces become, even without much change of function, that a section of a senile brain has been compared to Gruyere cheese. Of course the skull cannot adapt itself to the shrinking brain, but serum fills the space, and hence a mysterious sudden death was once ascribed to "serous apoplexy," a product of pathological contiguity misinterpreted.

The spaces which thus surround the vessels are smooth, and it is strange how slight is the effect they have. Attended symptoms are chiefly due to the changes in the nervous elements. But far smaller cavities may be often found around the smaller vessels, especially in the central ganglia, spaces that have eroded walls. They seldom much exceed a pea in size, but the small vessel within is degenerated by "arterio-sclerosis." They have been termed "lacunæ" by Marie, and to this "lacunation" many symptoms are ascribed—mental change, trifling hemiplegic seizures, a short-step gait. General feebleness is perhaps attributed to this process more than facts really warrant; and the same may be said of a like superficial change in the cortex, which causes a "worm-eaten" appearance. When many morbid processes are at work, it is not easy to apportion the influence of each.

The interdependence of all systems in the body is conspicuously brought before us in the nerve centres, which are influenced by senile changes in other systems by their direct or indirect effect. Those in the vessels and in the heart are potent for ill. Atheroma in the larger vessels causes local diminution in the blood supply, besides a sudden closure and its results. Through this, and the rupture of dilated arteries, are caused the gravest sudden brain disease of the old; they are due to the vascular system, although in the nervous system. Degenerative changes in arterioles, smaller than those in which they are termed "atheroma," have been lately called "arterio-sclerosis," and made answerable for symptoms grave and varied, perhaps more extensive than evidence warrants. Such a word is an easy diagnostic refuge, and may hinder discernment, like many others of its kind.

The nervous system is influenced by senile changes in other systems besides the vascular. Especially various are the effects exerted indirectly by the degeneration of the structures concerned with digestion and excretion. They constitute part of the organic laboratory of the body, the derangements of which are so potent and so little understood. The senile imperfections often involve products more or less harmful. Though here, again, we may err by ascribing to this cause whatever nervous derangements we cannot understand, it is certain that many symptoms are caused by toxic states due to such imperfect action, "endogenous" as they are termed. We meet, with senile derangements of function, as for instance in the peripheral nerves which can hardly be due to anything but such blood states; these states are many and varied, and we have yet to study them.

One such change in the blood is a condition analogous to that which accompanies and seems to underlie gout—a senile pseudo-gout. To it

may be due the chronic rheumatism which plagues the rural old. In common with true gout, it acts especially on the fibrous tissues, in which inflammation is readily excited by any trifling cause, with over-production of contracting tissue as the result. Thus Dupuytren's contraction of the palmar fascia is a sure sign of a gouty constitution. This senile tendency augments such a disposition in those who have inherited, but do not merit gout, when they reach the later period of life, and they are prone to suffer in many ways. To this cause may be ascribed the labyrinthine symptoms, tinnitus and vertigo, that are so common in later life; the tissue in which the nerves end being essentially fibrous. This may be also one cause of the tendency of senile pain to be so severe and prolonged, although here we are on uncertain ground. The pain which follows herpes, for instance, continues for years in the old, when it would be over in the young after a few weeks. We do not know whether this is due to the character of the cicatricial tissue in the inflamed ganglia or to the imperfection of nutritional restoration, nor can we say why other neuralgias, especially of the fifth nerve, are so common and inveterate in late life. We must connect the facts with the senile process of nutrition.

The pseudo-gouty state I have mentioned often leads to the unsymmetrical forms of neuritis, or rather perineuritis, sciatica, and especially brachial neuritis, with its prolonged effects, such as the arthritic adhesions, which are also promoted by its cause. A symmetrical degenerative neuritis is sometimes met with in the old, apparently due to a primary degeneration of the nerves, manifested by feebleness, with loss of the kneejerks and blunted sensation.

Symptoms of spastic or ataxic paraplegia are met within late life, apparently the result of a primary degeneration of the nerve fibres, since it has been found greatest towards their extremities, as if from failure of their nutritional centres. But the neuroglia overgrows when the neural elements waste, and so the aspect of systemic sclerosis is produced. In other cases all the elements of the cord undergo atrophy and diffuse sclerosis is found, often with but slight functional manifestation, just as is the case in the general wasting of the brain. The affection of the lateral columns is attended with the ordinary signs of spastic paraplegia but there is a form of senile weakness and slowness of movement in the legs in which there is no change in the knee jerk. Such cases resemble a local form of "paralysis agitans without tremor."

The various mental changes which result in the old from senile changes, have been already described to you by Dr. Savage. Slowness of thought, progressive mental feebleness, and physical failure, as well as

delusional disturbances, are common features. To which of the morbid processes they are chiefly due is still undetermined. The morbid process is apt to be ascribed to the changes last or chiefly studied, and in France "lacunation" is just now the chief agent. Sudden symptoms of organic significance must be due to sudden lesions, vascular in nature, and when slight are usually the result of obstruction. Occasionally, in the pre-senile period, severe and alarming symptoms of sudden onset may pass away in a few hours, and have been ascribed to vaso-motor spasm, perhaps in the small normal branches of a narrowed main artery. Another effect of degeneration is senile epilepsy, with the characters of the idiopathic disease. It is probably due to the imperfect nutrition of the nerve elements themselves.

The tremor that is so common in age is irregular in form and occurs on movement. It seems to be due to some nutritional change in the motor structures, the nature of which we do not yet know. This may be said also of that mysterious affection, paralysis agitans, in which the tremor is regular and occurs at rest (though sometimes at first only on movement), and is combined with an increased tonic state of the muscles, which may, indeed, preponderate. It is a pre-senile malady, commencing when vitality is beginning to decline, but not in really late life, and often, strange to say, anticipates even commencing failure. Its mystery is increased by its progressive course, which suggests a peculiar form of degeneration in the motor elements, at present uncontrollable. It thus has the character of a definite disease rather than of a true senile failure.

This may be said also of the decay of certain systems of structure in the nervous system, which occurs in late life, but often antedates any general failure of vitality. They are neural maladies due to a failure in a certain system of structure, so that in a group of structures "one is taken and another left." A common form is the decay of the lower motor neurons, giving rise to progressive muscular atrophy, or its local forms, atrophic bulbar palsy, labioglossal paralysis. Although they may be senile, they are so partial, and so progressive in the failure of structural life, that they may be classed as abiotrophies, vitality ceasing in one system of structure long before the rest. Many other maladies of the nervous system have their incidence also in old age, the peculiar chorea of the aged and some forms of spasm, which apparently begin as disturbance of function, facilitated and soon, as it were, stereotyped by the imperfect nutrition which age involves, which perpetuates morbid function when it is unable to restore the activity of health.

Senility may be hastened, but cannot be hindered. The nostrums that have been vaunted for the purpose, and still are produced, injections

of various organic substances and the like, are disgrace to our profession. The latest, alleged to hinder the effects of age in the nervous system, is actually the hypodermic injection of the pigment of decaying nerve-cells! But by making our patients avoid the causes that induce premature senility, we may hinder that which we cannot prevent, although the result of our efforts will be all unknown. Sometimes, moreover, vital failure is promoted by adventitious states of the system, which should be looked for and, if possible, remedied. Enough recuperative power may still remain to redress the failing balance if the depressing weight can be removed. Failure of function may also transcend that of nutrition, and may be helped, especially when a remediable toxic state is at work, or when, for instance, a weak heart, which can be strengthened, adds to the effect of vascular thickening, or is weakened by some incidental depressing influence which can be removed. Especially important is rest in the management of age. Men are slow to recognise the fact that they are getting old and they tax the system, especially the brain, too hard, until its function fails; yet may regain some of its old power by rest, wisely urged and taken and made adequately long. In all this, as in so much else, we give the best help by the resolute application of that uncommon agent, "common sense." I value, perhaps more than many do, the service that may be rendered by the influence on the chemical processes of life, of those chemical agents that are termed sometimes medicines, sometimes drugs. When wisely used, they may help the old as well as those in earlier life, but they cannot stop the process of decay. They may aid in lessening disturbance of function that is in excess of structural change, and the indirect effects on the nervous system of senile imperfections elsewhere; and they may relieve the discomforts which often augment the inevitable distress of vital failure.

Seldom, if ever, does age present the equable failure of every part of the body, portrayed for us by Oliver Wendell Holmes in the "One horse shay": It "went for a hundred years and a day," and then in a moment, was a heap of dust. It failed.

"All at once, and nothing first,
Just as bubbles do when they burst."

The Polyclinic.

Death from Sunstroke.

Senfleben¹, of Breslau, in a study of sunstroke presents some interesting facts. In a rapidly fatal case of death from sunstroke,

1. Berl. Klin. wchenschr., June 24, 1907.

the patient suddenly becomes unconscious and falls. The face is swollen, pale, cyanotic, the veins of the conjunctivæ are injected, the pupils wide and stiff. The skin is hot and dry, the rectal temperature 40° – 41° C. (104° – 106° F.). The respiration is humid, superficial and shows a tendency to cessation. The pulse is thready and barely palpable, the blood pressure greatly reduced. There are clonic and tonic contractions in various muscle groups, and death occurs in deep coma with convulsions. In cases less rapidly fatal or ending in recovery, the onset of the condition is announced by vomiting, fever, diarrhoea, hæmoglobinuria, dyspnoea, and cyanosis. Death may occur at once, during the first convulsions, or after the temperature has become normal and recovery has apparently begun, or after two or three days, or recovery may occur. In severe cases death occurs far too promptly to be the result of structural changes. It cannot be due to temperature alone because it occurs after the temperature has fallen to normal. It is not the result of heart failure from myocardial changes because the heart muscle is usually in conspicuously good condition. *A priori*, therefore, it is probable that only a violent poison could produce such a sudden death, and that supposition is strengthened by the fact that at the autopsy no structural lesions are found sufficient to account for the conditions. In making the autopsy the brain must be examined first, in order not to drain away any of the fluids that may be present in the cranial cavity, otherwise an entirely false idea of cerebral conditions may be obtained, because the blood in sunstroke does not coagulate well, but remains more or less fluid, even after considerable time has elapsed. Upon removing the skullcap, the vertex is found to be highly congested. The veins of the dura mater into their smallest branches are greatly distended, and project above the level of the surrounding surface. The longitudinal and transverse sinuses are filled with dark red, perfectly fluid blood, and everywhere in the brain the veins are full and the arteries empty. The lateral ventricles contain fluid, the choroid plexuses are distended. The cortex with its venous distension is sharply distinguished from the white matter. The condition of the brain is that of venous compression and complete arterial anæmia. The condition of the heart is highly suggestive. The left ventricle is strongly contracted, and perfectly empty, the right ventricle and its veins are enormously distended with fluid blood, the myocardium in good condition, the valves intact, the great cervical veins distended with dark fluid blood, the arteries perfectly empty. The lungs contain air, are cyanotic, dark red, and full of blood, no fluid in the pleural sacs, the pleuræ are dry. The abdominal organs are normal. The veins, especially the vena cava and the portal are distended with dark fluid blood.

The most salient feature of death from sunstroke is the greatly distended condition of all the veins, especially those of the brain, lungs, and abdomen, so that practically all of the blood is contained in the veins, while the arteries are entirely empty. This condition is caused by obstruction to the pulmonary circulation due to the formation of coagulative thrombi in the pulmonary capillaries, in the pulmonary arteries and even in the right heart. This coagulation *in vivo* is in marked contrast to the post-mortem blood after death from sunstroke, which remains fluid, and does not coagulate, because the requisite fibrin ferment is not present in sufficient quantity to cause coagulation, it having been previously consumed during life in the formation of coagula in the pulmonary circulation. This obstruction to the circulation explains the engorgement of the venous and the emptiness of the arterial system, as well as the clinical phenomena of failing pulse, dyspnoea, and other manifestations of cerebral anæmia. The explanation of the pulmonary obstruction is found in the study of the blood. In a case of sunstroke, immediately after the attack, an incision shows that the dark red blood is apparently hyperviscous, since it flows very sluggishly. Microscopically the red cells as a whole are very pale and poor in hæmoglobin. Many are completely decolorized and "shadow" cells. Others show less homogeneous loss of hæmoglobin, and appear as signet rings, or pessary or punched out forms. In others the hæmoglobin is gathered up into isolated globules, these being separated from each other by perfectly homogeneous, transparent stromata. These hæmoglobin globules are also seen free in the plasma. They vary in size, being usually about that of a microcyte, and are sometimes pale, sometimes intensely yellow in color, and the blood plasma is distinctly tinged with yellow. The white blood cells are somewhat increased in number with a tendency to appear in groups. Some of them contain bright yellowish red brilliant hæmoglobin globules six to eight in number and entirely *discrete*, besides the well-preserved white cells. There are a great many of their free nuclei in each preparation, so that this is a distinct and important feature of the blood picture, and explains the essential element in the causation of death from sunstroke, which is the formation of coagulative thrombi in the pulmonary capillaries, from the action of the fibrin ferment split off from the protoplasm of the white cells by the destructive effect of the liberated hæmoglobin upon the white cells. This splitting off of fibrin ferment leads to ferment intoxication and consequent rise of temperature, often occurring very rapidly and even in an explosive manner, thus indicating even during life the various processes associated with sunstroke. The inability of the red cells to hold their hæmoglobin, and its consequent appearance as free globules within the blood plasma, are possibly due to the sudden and

inordinate loss of fluids from excessive sweating, destroying the osmotic balance of the blood. That this is true is suggested by the fact that the dried residue is more abundant than in any other disease, the dried residue being 33 per cent. instead of 26 per cent. as in normal blood. The excretion of the free hæmoglobin is clinically manifested by hæmoglobinuria, and by bright yellow stools, and severe diarrhœa. The formation of the pulmonary thrombi causes arterial anæmia of the brain, with pallor, cyanosis, and dyspnœa, failing pulse, collapse, coma and convulsions, as the left heart receives less and less blood and the venous system becomes more and more congested. After the red cells become incapable of holding their hæmoglobin and this fresh hæmoglobin circulates in the blood, excessive destruction of white cells and liberation of fibrin ferment may at any moment cause the formation of coagulative thrombi and explosive rises of temperature. Death or recovery depend upon the amount of fresh hæmoglobin circulating in the plasma, and upon the rapidity of its excretion before too large a quantity of fibrin ferment has been liberated. In fatal cases so much of this ferment has been consumed with the resulting formation of coagulative thrombi that not enough remains after death to coagulate the blood, which accordingly remains fluid.

In attempts to employ transfusion it has been found that hæmoglobin circulating in the blood as a soluble compound is a most powerful agent to cause the destruction of white cells with excessive liberation of fibrin ferment and violent and sudden rise of temperature. The more recent, the fresher, the solution of hæmoglobin, the more dangerous it is. According to the amount of fresh hæmoglobin acting upon the white cells the clinical manifestations vary from simple rise of temperature, or fever, to dyspnœa, vomiting, diarrhœa, and hæmoglobinuria, or to sudden death within a few hours, with no clinical manifestations other than coma and convulsions, or immediate death, if the formation of coagulative thrombi be sufficiently rapid and extensive. The inability of the red cells to retain their hæmoglobin has been explained as due to sudden and excessive loss of fluids by sweating and their insufficient replacement by drinking fresh supplies. If this be true, and there is no other factor, the condition of the plasma is to be possibly more considered in the future as responsible for inability of the red cells to retain their full complement of iron. It is quite possible that subtle changes in the plasma may make it impossible for the red cells to preserve their hæmoglobin, and in these cases therapeutic efforts must be directed towards correcting this error. Some simple preparation calculated to increase the viscosity of the blood, such as calcium lactate, might be a better therapeutic agent than the direct administration of iron.—*Medical Notes and Queries.*

Hyperpyrexia.

In children the occurrence of hyperpyrexia during an attack of acute rheumatism is an extremely rare event. At the meeting of the Society for the Study of Disease in Children on November 15, Dr. G. H. Lock reported a fatal case, in a girl aged six years. The temperature rose to 110° F., and was little affected by the treatment adopted. The cold pack was very badly borne.

Hyperpyrexia may occur in other conditions—notably sepsis in the new-born; towards the termination of meningitis, generally of the tuberculous variety; as the result of heat stroke; in malaria; and sometimes at the onset or in the course of malignant fevers. It must not be forgotten that the heat-regulating centres in childhood, especially in infancy, have not acquired the stability of later life, and that irregularities of temperature are produced by much more trivial causes. Mere fright may send a baby's temperature up three or four degrees. Another important point is the fact that an abnormally high temperature may be due to the action of external heat, provided that the means of elimination are restricted. A child's temperature may be raised by the application of hot bottles or by a continuous hot pack. So, too, fever may be maintained by protecting the child from the loss of heat which takes place chiefly from the skin by radiation, evaporation, and conduction.

Causation.

The explanation of hyperpyrexia in rheumatic fever is a matter of uncertainty. In adults the high fever is sometimes associated with pericarditis. It has been ascribed to the effect of the rheumatic poison on the brain, meninges, or heat-regulating centre. There is no reliable evidence of meningitis in fatal cases, and meningitis of itself does not appear to be the cause of excessively high temperatures. The abnormal rise which often precedes death in tuberculous meningitis, and less frequently in other varieties, is more probably due to destruction of the inhibitory powers of the higher central nervous system on the heat-regulating centre in the medulla than to the actual meningitis.

That toxæmia may be the cause is supported by the occurrence of hyperpyrexia in the virulent cases of toxæmia which are sometimes seen in epidemics of specific fevers and in cerebro-spinal meningitis. In addition to the virulence of the toxin, we have to consider the reaction of the host, a reaction which is more powerful in the young than in older people. Hence, in the case of rheumatic hyperpyrexia in a child we may ascribe the height of the temperature to the virulence of the poison, the

instability of the heat-regulating centre, and the deficient resisting power of the body. Another point must be mentioned—namely, decreased loss of heat by evaporation from the skin. In Dr. Lock's case this was especially noticeable, for the skin was dry; and, in fact, high temperatures in rheumatic children are frequently associated with deficient loss of heat by sweating. The characteristic acid sweats of adults are comparatively infrequent in young children.

All the above features of hyperpyrexia suggest that it should occur more frequently in the young than in the old, except in so far as that the loss of heat from the surface of the body is greater in the young than in the full grown, in the small than in large animal, according to the relatively greater amount of body surface in proportion to body weight. One is therefore driven to the view that the infrequency of rheumatic hyperpyrexia in the young is due to insusceptibility to the rheumatic poison, or, more probably, that the poison is not developed in any quantity because of their insusceptibility to rheumatic arthritis, the synovial membrane being consequently regarded as the site of its chief development.

Treatment.

It is essential to reduce fever in these cases. Reduction of temperature does not necessarily shorten disease, but the patient may die from the excessive fever alone. The measures to be adopted vary with the height of the fever, its duration, the nature of the disease, and its probable course. The following methods of treatment must be relied on:—

Eliminate by purgation, lavage, rectal irrigation, diaphoretics and diuretics.

Reduce the sources of heat by putting the patient on a limited fluid diet.

Encourage the loss of heat from the surface of the body by free ventilation of the room, light clothing, and dry atmosphere.

Hydrotherapeutics.

Apply ice or Leiter's coils to the head, or let it rest on a rubber bottle full of cold water, if there are cerebral symptoms. Ice suppositories and rectal irrigations with water at a temperature of 95° F. are usual for infants, if there is not much prostration. Cradling is essential. Sponging should be adopted in all cases in which the temperature is over 104° F., using tepid water, vinegar, or eau de Cologne and water, etc. Or recourse may be had, in more severe cases, to cold fomentations, rubbing the surface of the body with ice, cold packing, or the cold bath. The latter two methods of treatment are often unsuitable to children and may cause

shivering, cyanosis, and collapse. It is possible that the temporary application of heat to the skin may be beneficial by inducing dilatation of the constricted cutaneous vessels.

Antipyretic drugs are sometimes necessary, notably when the attendants are stupid or inefficient, and proper nursing is not available. They are most valuable in the high fever of rheumatism, broncho-pneumonia, and enteric fever, but must be used with caution. A combination of phenacetin and caffeine citrate is the best, and is safer than antipyrin or acetanilide. It should be given in small frequent doses. Aconite, quinine, and salicylates are also valuable drugs. In some instances nothing produces any sufficient effect.—*The Hospital*.

Hysteria, Treatment of.

From a study of the subject of hysteria, the writer concludes that it consists of an instability or undue irritability of all the nervous and reflex centers throughout the body, and particularly those of the vasomotor and sympathetic systems. Hysterical paralysis or tremor and many other hysterical phenomena are produced by vascular change in the nervous system and elsewhere. The essential defect in the nervous system upon which the hysteria depends is inborn and inherent—that is to say, the reflex centers in hysterical subjects are throughout life more unstable than those of other people.

The general measures directed to the improvement of the nervous irritability may consist of rest, isolation from home surroundings, food, massage, electricity, hydrotherapy, and psychotherapy or hypnotism. Of all the various measures, rest is of the greatest value in allaying irritability of the nervous system. All sources of peripheral irritation must be removed. Complete rest of the body can be obtained only in bed. Abundance of sleep is essential, and it is sometimes justifiable to administer hypnotics. Removal from the conditions under which the disease arose is almost as indispensable as rest. It is often necessary not only to remove the patients from home, but to forbid any letters to be written or received.

As much easily assimilable food as the patient can take improves the nutrition of the nervous system and of the body generally. To increase the power of assimilation, such increase in the amount of food should be associated with massage. Massage also soothes the nervous system. As a rule, no drugs should be given, except an occasional aperient or dose of bromide for sleeplessness. Electricity is of considerable use, especially in those cases where a rigid rest cure cannot be given. Static electricity is

more useful than the galvanic and faradic forms. Hydrotherapy acts powerfully on the neurovascular system. Under psychotherapy may be included all kinds of persuasion, suggestion (auto-suggestion), and hypnotism. The object is to cultivate the will and control of the patient over her unruly emotions and unstable reflex centers. Ammonium bromide is the writer's sheet anchor for allaying the irritability of the reflex centers.

Apomorphine is the best remedy for the prompt cure of severe hysterical convulsions. The writer has also had a certain amount of success with vasoconstrictors (ergot), vasodilators (pilocarpine), and remedies acting on the blood (calcium salts) in cases where there is noticeable irregularity in the vasomotor regulator mechanism. Educational and other prophylactic measures are of great value.—T. D. SAVILL.—*Lancet*.

Referred Pain.

It is difficult to classify pain but the writer states that the following distinctions may be made: There are the pains of inflammation, of pressure, and of stretching—the two latter probably the same. Then there is neuralgic pain—pain with no organic lesion—and subjective pain where the mind itself is at fault. Lastly, there is referred or sympathetic pain—by this is meant that variety of pain which is located to one healthy part of the body as a result of disease in another. It may be the only pain produced by the disease, or it may coexist with a greater or less degree of local pain set up in the affected viscus. Allocheiria is that uncommon condition where the patient refers stimuli applied to one part of his body to a corresponding position on the opposite side. True neuralgia depends on no nerve lesion, neither is it referred from any remote condition. It is entirely distinct from referred pain, and yet the diagnosis is often extremely difficult. The points to be relied on are the area of distribution and the presence or absence of superficial tenderness. Referred pain is associated with hyperalgesia; with neuralgia this is unusual. Referred pain (and its superficial tenderness) is limited by boundaries set in the central nervous system; the distribution in neuralgia corresponds to some peripheral nerve.—D. FORSYTH.—*British Medical Journal*.

Typhoid Fever and Modern Treatment.

Good elimination should be maintained from every gland and emunctory, writes W. T. Marrs, of Peorie Heights, Ill. Every secretion should be aroused and made to do its best. Calomel in small doses is one of our best remedies. Salines are nearly always indicated. Abbott's saline laxative is pleasanter and better than crude salts. He has observed that

if the bowels act not less than twice daily, the course and severity of the disease is modified. The old idea that in typhoid the bowels should be kept confined for a few days at a time, is now looked upon as having been an untenable theory. The more debris and toxins are eliminated, the less will the disease be compelled to oxidise by the process of fever. The more water the patient drinks, the more are poisons eliminated or diluted, thus lessening their absorption. In case of hyperpyrexia, give a colonic flushing and the high temperature usually comes down a degree or two. The sulphocarbolates (W.A. Intestinal antiseptics) should be given to neutralise remaining foci of infection. Patients treated along this line seldom require the cold bath. Tepid sponging at frequent intervals usually serve a better purpose than the bath of low temperature.—*Merck's Archives*.

Treatment of Insomnia in Heart Disease.

SLEEPLESSNESS is often one of the most prominent causes of distress in chronic cardiac disease. Of all drugs I have found Chloralamide the most satisfactory. It may be given at first in doses of from 20 to 30 grs., suspended in mucilage or dissolved in rectified spirit. The dose may be increased until from 60 to 70 grs., are given nightly. The use of the drug should, however, be suspended at intervals, and of course, if possible, the dose should be gradually lowered. Veronal (gr. v.) I have also found useful in cardiac cases. Sulphonal, trional, and tetronal have not yielded such uniform results in the cases in which I have prescribed them. Sleep is essential in cardiac cases, and occasionally resort must be had to opium or morphia, although symptoms giving rise to anxiety are sometimes manifested, particularly if there are pulmonary complications. Apprehensiveness, irritability, restlessness, are prominent symptoms of failing heart. The addition of bromide of sodium or hydrobromic acid to the treatment suggested above will often have a calming effect.—Dr. F. J. WETHERED.—*Folia Therapeutica*.

Contra-indications for the use of the stomach tube.

1. Heart disease, especially when there is defective compensation.
2. Myocarditis.
3. Angina Pectoris.
4. Fatty heart, especially the advanced stages.
5. Aneurysm.
6. Recent hæmorrhages such as pulmonary, gastric, Vesical, apoplectic, renal, rectal hæmorrhages.

7. Pulmonary Tuberculosis.
8. Cerebral Hyperæmia.
9. Advanced Cachexia.
10. Continuous fevers as typhoid, pneumonia, &c.
11. Ulcer of the Stomach.
12. Carcinoma of the pylorus, especially where there has been Vomiting of "Coffee grounds."
13. Acute gastritis.—*R.M.S.A.*

SURGERY.

Note on a Palliative Treatment of Elephantiasis.*

BY

ALDO CASTELLANI, M. D. (Florence.)

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In Elephantiasis.—As shown by the histological researches of Crocker, Virchow, Unna, and others,—the subcutaneous tissue is enormously hypertrophied from increase of fibrous tissue in various stages of development; most of it being in fibrous bands and networks, while other portions are gelatiniform with fine fibres, numerous nuclei and cells. Given these anatomical features of the disease, I thought that Thiosinamin, which has been used by Hebra and others with success in cases of benign fibrous tumours and scars might be of some use in the treatment of elephantiasis.

As injections of Thiosinamin are very painful, I have always used Merck—Fibrolysin which is a water soluble combination of Thiosinamin with sodium salicylate, and can be obtained in sterile glass ampullæ, each containing 2 c.c. of liquid—corresponding to .02 grs. of Thiosinamin.

Method of treatment.—Before beginning the injections I keep the patient in complete rest in bed for a week,—bandaging the affected parts with flannel bandages or indiarubber bandages, and massaging them regularly twice daily. After these manipulations the affected parts do not show much improvement as regards size but become somewhat softer. I then begin injecting Thiosinamin.

I make the injections in various parts of the affected regions using the ordinary antiseptic precautions. I use an antitoxin syringe supplied with a strong needle. A sterile pad of gauze is applied at the place of the injection and the part is rightly bandaged. The injections are almost painless: after two or three hours there may be a little local pain, and

* A paper read before the Ceylon Branch of the B. M. Association on the 29th June, 1907.

the following day the part may feel harder than before, but in the successful cases, after two or three days the spot where the injection was made and the parts surrounding it become much softer. As regards dosage, I generally inoculate 2 c.c. of Fibrolysin every day or every other day according to the features of the case for about a month: I then stop the injections for a week, during which time I continue the use of flannel and indiarubber bandages, or start it if I have hitherto been using ordinary bandages. The indiarubber bandaging is most useful in cases of verrucosa elephantiasis: it has no action on the deep lesions of the disease, but it renders the skin much smoother, the hard verrucose—like projections disappearing or becoming smaller. After a week or ten days, a second course of 30 or more injections is given; then again a week's rest with rubber bandaging, followed, when necessary, by another course of injection. It is to be noted that while the use of rubber bandages is very useful in verrucose Elephantiasis, it is of very little advantage and occasionally may do harm in those cases of Elephantiasis which present a smooth skin.

After this treatment, the affected parts;—in successful cases,—are of much smaller size; the skin becomes softer, more elastic, and can be pinched up in folds; the enlargement of the bones, however, so frequently found, does not decrease.

After the treatment is over I advise the regular wearing of puttees or elastic stockings: if this precaution is not taken in a few days the affected parts again become enlarged. It is to be noted, however, that this enlargement is due apparently simply to an oedematous infiltration, as a day or two rest and proper bandaging are sufficient to make the swelling subside.

To remove the superfluous skin which remains after most of the subcutaneous tissue has been absorbed, and which facilitates the oedematous infiltration, I have suggested, when the disease affects the legs the removal of long elliptical strips of skin stitching up the margins of the wound together; this would not be practicable before the medical treatment, as the skin being enormously thickened and inelastic the coaptation of the opposed surfaces could not be obtained.

I have not observed any serious symptoms due to the Thiosinamin: on the occasion a patient after the injection of a double dose (4 c.c. fibrolysin) complained of severe frontal headache, slight nausea, and general malaise which lasted for a few hours.

CASE I.

Elephantiasis of the right leg.—Genegada Singhappu, Singhalese lad of 18 years of age; admitted to the Clinic, January 2nd 1907. First

symptoms of the disease appeared 12 years ago when he suffered from repeated attacks of fever accompanied by painful temporary swelling of the right leg. Later on the enlargement of the leg became permanent, increasing gradually to such an extent that the patient had to give up his work: he was an in-door servant.

At the time of admission the whole limb below the knee was greatly enlarged, the skin being thickened hard, and rough; on the dorsum of the foot and toes numerous horny hard prominences were present. The limb measured round the ankle $23\frac{1}{2}$ inches; round the calf, $25\frac{1}{2}$ inches; the inguinal glands were not enlarged, the scrotum and the left leg were not affected. No filaria was found in the blood.

The patient was first kept in bed for two weeks with the right leg slightly elevated and tightly bandaged with flannel bandages. The limb was massaged twice daily. At the end of the two weeks the parts were slightly softer,—but the dimensions of the leg were practically the same. The Thiosinamin treatment was then begun using the precautions already mentioned.

The patient received altogether 62 injections; during the last period of treatment the limb was very tightly bandaged for one hour three times daily with a Martin rubber bandage. At the end of the course of injections the condition of the affected leg was strikingly improved; circumference round the ankle being reduced to 9 inches; round the calf to 12 inches. Moreover the skin had become softer and of almost normal elastic.

The patient finding himself so much improved, able to walk easily, whereas when admitted he could scarcely move without help; asked to be allowed to leave the Clinic temporarily and go to his village where he had some business to transact. I told him to use a flannel bandage continuously and to come back to the Clinic at the earliest possible date. He returned two weeks later; confessing that he had never used the bandages supplied to him. The lower part of the leg and foot were much enlarged (circumference round the ankle 12 inches) œdematous, soft. After 24 hours of complete rest in bed and rubber bandaging, the swelling disappeared and the measurement of the limb gave the same results as when he had left. The patient is still in the Clinic; he has not had any more Thiosinamin injections; he is allowed to walk; for an hour in the evening and an hour in the morning the use of the rubber bandage is continued regularly. At the present date about two months after the Thiosinamin injections have been stopped, the circumference round the ankle has increased one $\frac{1}{2}$ inch.

CASE II.

Elephantiasis verrucosa of the right leg.—The patient—a private case—consulted me in October 1906. He was suffering from elephantiasis of the right thigh, leg and foot of 20 years duration. The skin of the lower part of the leg and foot was extremely hard, inelastic, and covered with numerous small wart-like protuberances.

Measurements: round the ankle, $24\frac{1}{2}$ inches; round the calf, 27 inches; round the thigh, 25 inches.

The patient underwent a treatment of 90 Thiosinamin injections combined with complete rest in bed, and the use of flannel bandages first and indiarubber bandages later. The case improved greatly, the skin becoming softer, more elastic, and much smoother. The circumference round the thigh was reduced to 21 inches; round the calf to 16; round the ankle to $14\frac{1}{2}$. The patient was able to walk with much greater ease. I have recently seen the patient again; nearly five months since the injections were stopped: the dimensions of the affected limb now are: thigh, 22 inches; calf, $17\frac{1}{2}$ inches; ankle, $16\frac{1}{2}$.

The patient following my instructions has been wearing puttees, and has continued regularly the use of the rubber bandaging twice daily for an hour. He states that if he stops the bandaging and the wearing of puttees even for two or three days, the leg becomes swollen and œdematous; the swelling disappears, however, after a few hours rest and bandaging.

CASE III.

Elephantiasis of the left leg.—The patient—a private case—had elephantiasis of 15 years duration localised to the lower part of the left leg and foot. He underwent a course of 56 thiosinamin injections combined with rest, massage, and the use of rubber bandages. The improvement was very slight, the skin became somewhat smoother, but the dimensions of the affected part, remained practically the same. I think that rest, massage, and bandaging alone without the injections, would have induced the same improvement.

CASE IV.

Elephantiasis of the left leg.—Sinhalese woman 56 years of age; admitted to the Clinic, 2nd April 1907. The disease is of 15 years standing and is localised to the lower two-thirds of the left leg and foot. The skin was thick and inelastic but not so rough as in the other cases. Circumference round the ankle, 19 inches. The woman was kept in bed for 10 days and the parts bandaged with flannel bandages: skin softer,

but dimensions of the limb practically unchanged. I then began the thiosinamin injections. The patient is still under treatment having received only 22 injections; there is, however, already a most marked improvement;—the circumference round the ankle having decreased to $11\frac{1}{2}$ inches, and the skin having become much more elastic.

Summary and conclusions.—The results of the treatment I have adopted in my four cases can be seen at a glance, in the following table where the measurements are collected.

TABLE I.

NO. OF CASE.	MEASUREMENT (ankle) BEFORE TREATMENT.	MEASUREMENT (ankle) AFTER TREATMENT.	REMARKS.
Case I ..	$23\frac{1}{2}$ inches	9 inches	
Case II ..	$24\frac{1}{2}$ inches	$12\frac{1}{2}$ inches	
Case III ..	$17\frac{1}{2}$ inches	$16\frac{1}{2}$ inches	.. no improvement.
Case IV ..	$18\frac{1}{2}$ inches	$9\frac{1}{4}$ inches	

The results I have so far obtained induce me to believe that the method of palliative treatment I have devised for elephantiasis, *viz.*, Thiosinamin (Fibrolysin) injections, methodical bandaging, and the removal of portions of the redundant skin when most of the subcutaneous tissue has been absorbed, may be of utility in a certain number of suitable cases. By suitable cases I mean cases which are not of too long standing and do not show complications, such as ulcers.

Pruritus ani, Etiology and Treatment of.

It is sometimes impossible to ascertain the cause of pruritus ani, but in the large majority of the cases the following are the most common exciting causes: Constipation and faecal impaction; local disease of the rectum or anus; want of cleanliness in the anal region; pediculi and seat-worms or vegetable parasites; constitutional or systemic disease; diet and irregular habits. Again, pruritus might also be a reflex phenomenon of uterine or bladder disturbances, excessive and perverted sexual indulgence, and, lastly, some disease of the brain and cord, or senility.

In the treatment of pruritus ani the cause must be sought for and removed. Where no distinct cause can be found the diet must be regulated. Meat should be used sparingly and overseasoned food avoided; likewise alcoholic stimulants and tobacco, tea, and coffee. The author finds a soothing application most reliable: $\mathcal{R}$ Chloral and camphor, $\mathfrak{z}\text{iv}$; rub these into an oil and then add: Unguenti simplicis, pulv. acid. boraci, of each, $\mathfrak{z}\text{iv}$. M. Sig.: Apply with a brush three times daily after

cleansing the parts with hot water. In some cases the addition of 20 grains of carbolic acid, in others again 20 grains of menthol, is extremely beneficial and is often sufficient to secure a good night's sleep. Where more heroic measures are required he employs successfully pure carbolic acid, the saturated solution of nitrate of silver, of the Paquelin cautery. —H. A. BRAY.—*New York Medical Journal*.

Phimosis as a cause of general disturbances.

WITZENHAUSEN (*Munchener Med. Wochenschrift*) says that while attention has already been directed to phimosis as a possible etiological factor in the causation of urinary disturbances and nervous symptoms in children, it has not been recognised to a sufficient degree that other conditions may also be referable to this abnormality of the prepuce. He reports a number of cases in which constipation in infants was relieved by the operation of circumcision, and explains the beneficial effect of the procedure as follows. As a result of the stenosis of the preputial opening the act of urination is rendered difficult, and ultimately the bladder is imperfectly emptied, becomes dilated, and a more or less serious state of overflow incontinence results. As a consequence of this the pelvic organs are crowded by the enlarged bladder, the rectum is pressed upon and constipation results. In consequence of this early perversion of function more or less serious and persistent disturbances are caused which may require a long time to subside even after the initial source of the trouble has been relieved by circumcision.—*N. Y. Med. Record*.

Treatment of Snake-bite.

Referring to the treatment of snake-bite, Professor Riehl, of Vienna, states that the best treatment must aim at destroying the poison at the part bitten and at preventing its absorption into the system. Several methods, such as cauterisation, bleeding, compression, and the application of a ligature, have been advised for these purposes. Extensive trials have now been made by Professor Calmette and Professor Paltauf of methods to prevent poisoning by treating the affected part with a solution of chloride of calcium. A solution of one part of this substance in twelve parts of water is to be diluted before use with six times as much water, and from 10 to 12 c.c. is to be injected by means of a Pravaz syringe around the bite, so that the poison may be neutralised. This simple method is said to be efficacious for all sorts of snake-poison. The earlier the treatment is instituted the better the result.—*The Medical Times and Hospital Gazette*.

Tennis Elbow.

Nearly every form of sport, we are told by a writer in the *Hospital*, is liable to give rise to some special surgical lesion generally involving some particular region, and taking the form either of a fracture of a bone or a tearing of some muscle or ligament. Of the so-called tennis elbow he goes on to say:—"In most cases there is definite tenderness on pressure and acute pain is caused by any forcible and complete extension of the elbow. In some cases this pain is felt most sharply when the arm is extended and at the same time supinated (turned palm upward), as occurs when a low ball is struck in tennis. In these cases it is probable that the injury has been inflicted in the effort to take such a ball. . . . In other cases, again, the injury appears to be caused by a forcible back-handed stroke, and it is this stroke in particular which causes most pain, and may give rise to a recurrence of the symptoms after they have subsided. In these cases the forearm is extended and pronated (turned palm downward), and the extensor muscles of the arm and forearm are chiefly involved." The trouble is probably due, in most cases, to the tearing of muscular fibre, and is not usually accompanied by swelling. It is "very intractable to treatment, and liable to recur even after prolonged rest."—*Ibid.*

Weak Ankles.

Weak ankles are often due to a sprain in childhood, the ligaments never seeming to regain their strength satisfactorily. When such is the case considerable benefit may be obtained from a course of simple exercises, and although it may take years to reach a standard when tennis-playing can be indulged in without fear of "turning over the ankle," and rough walking loses its terrors, a wonderful difference will soon be apparent if they are preserved in. One of the simplest and easiest exercises is that of crossing one knee over the other and stretching out the balanced foot as straight as possible, pointing the toe downwards and drawing in the heel. This should be done night and morning with both feet alternately, when they should be bathed in salt water and then rubbed well with warm oil.—*Misc.*

Treatment of Herpes.

Excellent results have been obtained in the abortive treatment of herpes from the local use of one part of resorcin or menthol to fifty of alcohol. If there is much pain gauze steeped in the following solution and covered with an impermeable dressing gives speedy relief. Alcohol, 100

parts; cocaine hydrochlorate, one part; extract of cannabis indica, ten parts; mint essence, ten parts.—*The Medical Times and Hospital Gazette.*

Treatment of Bed Sores.

Billroth is said to apply the following treatment for bed sores: Upon the appearance of reddening of the skin he applies a lotion of vinegar or lemon juice. If excoriation is present he applies nitrate of silver, and protects the part by zinc ointment or soap plasters. Where gangrene comes on antiseptic compresses are to be applied, the wound being cleaned by the use of chlorine water.—*The Canada Lancet.*

OBSTETRICS AND GYNÆCOLOGY.**Puerperal Infection from the Gonococcus.**

BY

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Investigation of the causes of puerperal peritonitis has proved that it is caused by many organisms of which the streptococcus is most prominent, both in severity and frequency. No inconsiderable proportion of cases of puerperal infection are, however, the result of infection with the more uncommon organisms, such as staphylococcus, gonococcus and pneumococcus. The streptococcus, however, is the infecting organism in the majority of cases and was present in 40 per cent. of 498 cases collected by the author, in which the contents of the uterus was studied bacteriologically.

In this study it was interesting to observe that in the earlier cases the gonococcus was but infrequently mentioned, but coincident with improvement in bacteriological technique, the frequency of its isolation from the uterine lochia was much increased. Heretofore widely divergent views have been held in regard to the pathogenicity and frequency of the gonococcus as a cause of puerperal infection. Bumm and Wertheim are inclined, to believe that it is not a frequent infecting organism, and Sænger thinks that it may be a more common cause of puerperal and post-puerperal disease.

Most investigations, however, have been wanting in bacteriological thoroughness, and the organism has not been found. The difficulty of cultivation of the organism has been the greatest hindrance to its

isolation. Another frequent source of error is that the cultures have most commonly been made soon after the first exhibition of temperature and while the lochia contained much blood and few pus cells. The gonococcus cannot readily be found in smears under these conditions, but is best discovered when numerous pus cells exist and after the infection has advanced somewhat. It was also found in a study of 17 cases of gonococcus puerperal infection by Stone and the author that the gonococcus was usually readily found in smears from the uterine lochia after the discharge has become purulent.

Of these 17 cases, 12 had rises of temperature to about 100° F., and when the cases of mixed infection were eliminated nine of 14 cases, in which the gonococcus was found in the lochia, had such rises of temperature. To consider these nine cases first, the fever was mild in three, moderately severe in four, and in two was severe; in five the onset of fever was distributed over the first week; and in one it was as late as the 13th day. The average duration of the fever was 4.1 days, varying from three cases, in which the fever lasted one day, to two cases in which it lasted nine days.

The fever was in all cases very irregular and followed no definite curve. In one case, the infection was very severe, but in the majority of cases this was not so, and temperature curves corresponding to the so-called "sapremic" or septic absorption temperature were more frequently found, the temperature suddenly rising and returning to normal in three or four days.

The three cases of mixed infection had widely varied courses. One of gonococcus and colon infection had fever on the sixth day, which lasted six days and reached 102° three times. Two cases of streptococcus and gonococcus infection also varied. One had a mild course and the other a most severe infection, resulting in death.

These cases show that the gonococcus may be a cause of puerperal infection and may cause severe constitutional disturbance. These findings have been corroborated by Mayer in a study of six cases of such infection and by an investigation of Little into the bacteriology of the recently pregnant uterus. Little found the gonococcus in the lochia in 16 cases. There were 10 cases with a temperature above 100° F.; six cases were in pure culture, two in mixed culture and two doubtful. There were three cases with a rise above 100.6° F.

From this it may be seen that gonococcus infection in the puerperium must not be disregarded. The first course of the infection is not usually acute; but the late manifestations are more dangerous and severe. The

common cause of gonococcus infection in the puerperium does not, as a rule, show marked constitutional symptoms, but the danger of extension of the disease to the Fallopian tubes is a very grave one. In nine of the 17 cases such extension was believed to have taken place, as indicated by pain, abdominal rigidity and signs of a mild pelvic infection. In one case this extension was definitely proved by operation.

The disease may extend still further and cause general peritonitis, as is shown by a case reported by the author in which a diffuse peritonitis resulted from gonococcus infection in the puerperium. The organism was recovered from the peritoneum at autopsy.

The character of the lochia in gonococcus infection in the early part of the puerperium remains unchanged, but after the fifth day it becomes more and more purulent, until it is replaced by a purulent discharge. This discharge, resultant from the endometritis, usually persists for some weeks. During this time the gonococcus may be readily isolated.

An interesting fact in connection with this infection is the malnutrition and intestinal disturbances to which babies of infected mothers are subject. Of fourteen babies, three died, and the majority of the others lost weight. These facts in regard to the morbidity of the babies have been confirmed by Lobenstine in fifty cases.

The influence of labor upon a pre-existent gonococcus infection is most marked. The softened tissues and large, raw surface of the puerperal uterus offer a splendid culture ground for the organism. It usually extends by mucous membrane, but may penetrate the softened uterine muscle. Extension to the fallopian tubes is the common result and late disturbances are the rule.

Two cases of the seventeen came to operation for purulent salpingitis and others have not been traced.

The gravity of this infection exists not so much in its prime infection and immediate constitutional disturbances as in the more remote result of tubal and pelvic disease some time after the puerperium. It is a well known fact that streptococcus infection results in slight anatomic alterations of the pelvic organs after recovery from the infection, but the reverse is true of gonococcus infection where marked alteration of tissue is the rule and spontaneous recovery from pelvic disease from this cause is the exception.—*The Post-graduate*.

Puerperal Infection.

Little (Herbert M.) *Montreal Med. Journ.* Vol. xxxvi., No. 6, pp. 395—405.—This paper is based upon the experience of a year's work

at the Montreal Maternity, but only the results of the author's own practice are included in it. Stress is laid upon the following points:—

1. *Prophylaxis* should begin early in pregnancy. To this end the importance of maintaining the patient's general health cannot be overestimated, as the better the health of a parturient woman the less is the likelihood of infection, and the less likely is it to be serious should she become infected.

Profuse vaginal discharges should be treated locally as early as possible. In the majority of cases copious douching with salt solution or boric acid suffices if combined with rest if not, swabbing with stronger antiseptic solutions, under anæsthesia, will almost certainly effect a cure, and advantage should be taken to treat warts, or erosions, at the same time. The author speaks highly of the permanganate of potash and oxalic acid method of disinfection for these cases.

2. *Methods employed in the conduct of aseptic labour.* The preliminaries are a full bath, emptying the rectum by an enema, and shaving and disinfection of the vulva. In all cases where operative interference is necessary a piece of protective rubber tissue is moistened with chloroform and applied over the buttocks and perineum. By this means infection from the rectum is excluded. In ordinary cases sufficient information as to the course of labour can be ascertained by abdominal palpation and invagination of the perineum. After very little practice rectal examination with sterilized rubber gloves dispenses with the necessity of any vaginal examination.

The correct management of the third stage is emphasized. Retention of the membranes is not nearly so dangerous as exploring the uterus to remove them, except when they can be felt hanging out of the cervix, in which case the ascent of organisms from the vagina to the uterus is undoubtedly favoured. Stress is laid on the importance of catheterization of the bladder after the completion of the third stage. After every labour there are cracks and abrasions about the vestibule which will heal in a few hours if left alone. If catheterization is necessary later these cracks and abrasions will be opened afresh and will remain a possible site of infection. In addition, nothing hinders the involution of the uterus, so much as distension of the bladder. The importance of a firm, well involuted uterus, early in the puerperium, in the prevention of hæmorrhage and sepsis, cannot be overestimated.

3. *The recognition of varieties of sepsis.* No clinical methods suffice, and exact diagnosis can only be arrived at by bacteriological examination of the lochia in utero and the blood. The author strongly recommends

Williams' method of obtaining the former. Nevertheless the macroscopic appearance of the lochia collected in a tube is suggestive of the nature of the infection. Should the lochia be stringy and gelatinous, of a greenish-yellow colour, and possibly streaked with blood, a gonorrhœal infection is probable, whereas in streptococcic infections the breaking down of the red-blood corpuscles gives the lochia a diffuse cherry-red appearance; in anaerobic infections the lochia are usually of a dirty dark-brown colour. No importance can be attached to the smell.

4. *The treatment of intra-uterine puerperal infections.* The author most strongly condemns the use of the curette, which, in his opinion, is positively harmful in streptococcic and valueless in gonorrhœal infections. Strong antiseptic solutions cannot penetrate sufficiently deeply to be of any use, hence he recommends salt-solution or mild antiseptic douches only locally. In severe streptococcic infections he is a firm believer in the efficacy of fluids: "by the use of rectal salines, and submammary salines, by forcing the patient to drink, ten to twelve litres of fluid can be given in the twenty-four hours, and where this is done there can be no doubt as to its therapeutic value."

He is sceptical as to the results obtained by the injection of silver salts. In the future great expectations may be raised when vaccines will be rapidly obtained and employed in the way suggested by Wright. The varying characteristics of the organism found have, up to the present, rendered the use of antistreptococcus serum of no practical value.

5. *The treatment of incomplete abortion.* The line of treatment to be adopted is the same. Removal of the retained products by the finger, never by the curette, and provision of free drainage from the interior of the uterus by wide dilatation of the cervix, rather than by gauze plugging, are sufficient in most cases. Severe septic cases are to be treated on the lines detailed above.

In conclusion, the author comments on the treatment of puerperal sepsis as described by Gordon in the January number of this Journal. He is convinced that better results would have followed if the vigorous use of the curette and the necessarily ineffective attempts at disinfection of the interior of the uterus had been replaced by milder measures.—*The Journal of Obstetrics and Gynaecology.*

On Glycogen in the Placenta.

Driessen (L. F.), Amsterdam. *Archiv f. Gynakol.* Bd. lxxxii., p. 278. —Driessen's investigations revealed the constant-presence of glycogen in the placenta during the first months of its formation. The proliferation of the uterine glands was coincident with an accumulation of glycogen,

especially in the papillary excrescences. During the latter months of pregnancy this substance disappeared when the lumen of the glands had been narrowed to longitudinal slits. Though glycogen was never found in the normal uterine mucous membrane, it could be demonstrated in abnormal conditions due to myomata, or malposition of the uterus. He looks upon the presence of glycogen in the uterus as the expression of an increased activity of the epithelial cells. Glycogen could never be detected in the cervical mucous membrane, but, in a case of tubal gestation, the epithelial cells of the Fallopian tubes secreted this substance. He very rarely found glycogen in decidual cells. In the earliest stages of placentation the ovum was covered by a layer of cells containing glycogen where the foetal and maternal tissues come in contact. He could never detect glycogen in the syncytium of Langhans cells, but it was evenly distributed in the connective tissues of the villi and chorion in the form of globules. The epithelial cells of the amnion proper never contained glycogen, but it was found in the amniotic layer of the umbilical cord. The greatest amount of glycogen was found from the third to the eighth weeks of gestation the mature human placenta is almost free from glycogen.—*Ibid.*

Maternal Nursing.

A definite number of instances, in which the mother is unable to nurse her baby, are found due on investigation to the neglect of simple precautions in the management of the breasts and nipple during pregnancy and lactation. Much of this neglect arises from ignorance and can be guarded against by a little simple advice from the family doctor.

In a primipara no special attention is needed for the breasts in most cases. But in those with exceptionally large breasts and in multiparæ a moderate degree of support by a suitably arranged handkerchief or bandage will relieve the dragging sensation, due to the increasing size and weight. The clothes should be loosely arranged to prevent pressure. The skin in the sub-mammary folds should be washed night and morning and freely dusted with a drying powder, such as zinc oxide and starch.

How to prevent Sore Nipples.

Attention to the nipples is of even greater importance, for they are liable to excoriation and fissure during suckling, and to secondary infection which may give rise to mastitis or mammary abscess. During the last three months of pregnancy the nipples should be washed daily, and freely anointed with benzoated lard, cacao-butter, vaseline, olive oil, or lanoline. If they are small or retracted, the expectant mother must be taught to use the finger and thumb to draw them out.

Treatment of this nature gives them a proper size and shape, and makes the epithelial covering soft and pliable. Neither direct nor indirect suction should be used to draw out the nipples. Neither astringent nor spirituous lotions should be applied, for they harden the skin and make it more liable to crack. For protection during the last few months of pregnancy, if the nipples are swollen and prominent, a pad of antiseptic wool is sufficient. It should be frequently changed, if there is much overflow of milk. It is from neglect of these simple precautions that the painful fissure of the nipple so often arises during lactation and compels the mother to give up nursing.

After the birth of the child want of cleanliness, constant moisture from galactorrhœa, or too frequent suckling, may cause excoriation or abrasion of the epithelium. Infection of the raw surface and the mechanical effects of suckling prevent healing, and the fissure develops. Apart from the pain to the mother and the liability to mammary infection, a fissure may be injurious to the child in consequence of the amount of blood swallowed.

Some further points in Treatment.

It is obvious that the main treatment is essentially preventive. During lactation the nipples should be bathed with cold water before and after nursing. Olive oil, etc., should be applied two or three times a day. If there is the least excoriation, it should be treated at once with zinc ointment; balsam of Peru one drachm, with half an ounce each of cold cream and lanoline; or, if an astringent is needed, tannic acid, gr. xv, and Friar's balsam, half a drachm, to the ounce of vaseline. A simple measure is to paint on the nipples a protective coating of raw white of egg before and after nursing, washing well first.

More often attention is not drawn to the nipples until an actual fissure has formed. The fissured nipple should be dried with antiseptic wool and painted freely with a mucilaginous solution of boric acid, gr. x to the ounce, after each nursing, the parts being washed with warm water and painted with raw white of egg before the child is put to the breast. Should this fail, the fissure may be touched every other day with a finely pointed stick of silver nitrate. A more thorough method consists in washing with 5 per cent. boric acid solution, anæsthetising with cocaine, painting with a 10 per cent. solution of silver nitrate, drying with absorbent wool, and finally painting with egg albumin. During the treatment the mother should continue nursing with the aid of a nipple shield.

A 5 to 10 per cent. solution of cocaine, applied half an hour before nursing, will relieve pain, but the nipple must always be carefully washed before allowing the child to suck.

Sometimes all these methods fail and the breast-feeding will have to be temporarily omitted, the child being fed alternately from the unaffected breast and on an artificial milk mixture. The activity of the gland can often be successfully maintained by the systematic use of the breast pump.

Mammary Abscess.

Lymphangitis and abscess of the breast are still more serious affections, and generally arise through infection of the nipple in the manner already stated. Possibly abscess can be induced by inefficient emptying of the breast during the first few days after confinement, provided an infective organism makes its way into the congested gland through the blood, lymph, or ducts of the nipple. Suckling and the use of the breast-pump must be prohibited, if there is an abscess or even mastitis. Give the mother a saline cathartic, such as a full dose of Epsom salts, two-grain doses of quinine three or four times a day, and apply equal parts of extract of belladonna and glycerine or lead lotion locally. If there is pus, open and drain the abscess. In some cases, treated at the onset, the inflammatory process subsides, milk secretion is continued, and nursing can be resumed.

Tuberculous and malignant disease of the breast are both uncommon in nursing women, and are obvious bars to suckling. Evidence of old mastitis is not a contra-indication, but the child must be carefully watched and weighed regularly, for mastitis interferes with the full activity of the affected gland, and the child may get an insufficient supply of food.—*The Hospital*.

Is menstruation an indication for weaning?

(*'St Petersburg Medicinische Wochenschrift,'* July 27, 1907).—Keilmann introduced this question at a meeting of the Livonian Medical Society. Menstruation, he said, was generally regarded as an indication to wean the child. He believed that early or late *post-partum* menstruation depended upon the mother's general condition; the earlier the mother menstruated the better was this condition; suckling should then undoubtedly be continued as long as sufficient milk was secreted. Menstruation *per se* was absolutely no reason for weaning the child. Experience further teaches us that the child can thrive even should the mother be again pregnant, and no harm accrues to mother, child, or embryo. This view was vigorously combated in the discussion that followed, many contending that the mother could only properly nourish one other organism, either the child or the embryo. Tantzschler agreed with the opener that the child could be profitably suckled so long as there was sufficient milk and it had no colostric properties. — *The British Journal of Children's Diseases*.

THERAPEUTICS.

Hydrotherapy.

Hydrotherapy is the application of water in varied forms to the surface of the body. It is no exaggeration to state that benefit may arise from this use of water in almost every ailment.

Hydrotherapy as a therapeutic agent is perhaps almost as old as the world itself. Hippocrates held water in high favor and the invention of the shower bath is commonly ascribed to Asclepiades of Prusa, in Bithynia, B.C. 128-56, though Pliny says that we are indebted to Sergius Orata for the primitive form of this device. Nearly all the ancient medical writers, including Celsus, Aretaeus Agathinus, Aetius, Galen, Herodotus, Rhazes and Avicenna, speak in high terms of the use of water in medicine.

In Italy and France hydrotherapy made a start in the fifteenth and early sixteenth centuries, and such treatment was even applied in mental diseases.

Floyer and F. Smith in the seventeenth century wrote on hydrotherapeutics in England, and in the early eighteenth century F. Hoffmann wrote on the subject in Germany. About the middle of the eighteenth century F.G. and J.S. Hahn treated febrile diseases with cold water, and one of them when attacked by typhoid fever had himself treated by this method, modifications of which have been so widely adopted in modern times. In the latter part of the eighteenth century, in spite of good results both in Germany and England, the treatment was again falling into disuse when, soon after 1820, Vincent Priessnitz, originally a small farmer of Graefenberg in Silesia, began to treat every kind of ailment, chronic as well as acute, by hydrotherapy. In America hydrotherapy was first introduced in 1843 by Dr. Russell Thatcher Trall, of Vernon, Connecticut, and Dr. Joel Shew, of Providence. Winternitz placed hydrotherapy upon a sound and scientific basis, and he may be termed the high priest of the method in Europe, just as Simon Baruch is in this country. Kellogg, Brand and Ziemssen have also done much towards advancing the knowledge of hydrotherapy.

The great John Wesley was a firm believer in the merits of the external application of water, even going so far as to declare that cleanliness was next to godliness.

The foundation of hydrotherapy rests on the benefit that is manifest in those who indulge in the simple daily bath for hygienic purposes. In the case of children this takes the form of a daily immersion in water of

80-90° F., but with the approach of adolescence the hardening of the system is better attained by the brief use of cold water, 60° F. The cold water evokes a reaction of the skin, which determines the blood to the interior, accelerates the heart action and deepens the respiration. Thus the excrementary products CO₂ and urea are eliminated in greater quantity.

After the use of the daily cold bath for a brief moment there is a greater muscular activity, and with the aid of the microscope the number of blood cells will be found increased. Such is the tonic and prophylactic use of water in health, and for these very reasons more so than for its possible heat abstracting properties it is used—unfortunately but too little in disease—and when applied it is done in a very unscientific fashion.

Ablution in disease is to be performed by dashing the water on the surface of the body with a linen rag. The whole surface of the body is to be gone over, bringing into play friction with the wash rag. The water is to be at a temperature of 60° F.

Indication. As a preliminary to other methods of water application in order to learn the reaction of the patient and in the milder types of fever as an antipyretic and sedative measure.

Sheet Bath. The patient, while standing in a tub of water at 95° F., has wrapped about him a sheet wrung out of water at 60-70° F. As the sheet becomes warmed by the body cold water 60-70° F. is poured on. When the bath is given in bed the sheet must be everywhere in contact with the body and the cooling water applied with a sponge. Indications for this form of bath are in high febrile conditions, such as scarlatina, and in feeble individuals with chronic affections who cannot be indulged in other forms of bathing.

The Drip Sheet Bath (70° F.) is a modification of the foregoing. As the term implies, a dripping wet sheet is thrown loosely about the patient from behind. The attendant executes stroking movements upon the sheet so as to draw the blood to the surface and when the parts of the body feel warm cold water, 40-70° F, is thrown on from a basin or cup. Daily the temperature of the wet sheet may be reduced until 50° is reached.

Indications. This form of bath constitutes a powerful form of stimulus in anemia, chlorosis and tuberculosis.

Wet pack is executed by enveloping the patient in a damp linen sheet so that all opposing surfaces are in contact. This is allowed to remain one-half to one hour, and each day the temperature is lowered until 50° F. can be tolerated. During its application the windows may be open.

Indication. The effect of the pack at first is stimulating and with the reaction a profuse perspiration sets in. This exerts a soothing influence on the patient, hence the value of a wet pack in hysterical hyperesthesia and neurasthenia. By successively changing the pack every five minutes we can get a marked antipyretic effort. The final act of a wet pack should consist in an ablution, if the patient be feeble, or a half bath.

Partial Packs. A wet linen cloth wrung out of cold water is applied to a local area and covered with flannel to prevent hasty evaporation. When the cloth is dry it should be renewed, preceded by a cold ablution. Abdominal compresses constitute a variety of local pack.

Indications for the use of local packs are chronic articular rheumatism, anemia, hemoptysis, catarrhal intestinal affections.

Hot Wet Pack requires the substitution of water at 110° F. for the cold water. At the end of one hour's application the pack is removed and followed by an ablution with water at 65°. This has been found of value in obstinate insomnia.

Hot Blanket Pack. Blankets are steeped in water at 110° and when thoroughly wrung out are wrapped about the subject. The great dilatation of the surface vessels that ensues lowers blood tension and causes free perspiration. Hence the indication for this procedure in uremia and eclampsia.

Local Hot Packs are to be renewed each half hour. They are of value in rheumatic and neuralgic affections.

Half Bath is prepared by filling the tub with six inches of water. The patient seated in the tub has the water dashed upon him and occasionally dips in it. All the while friction of the body is maintained. The temperature of the water is to be 60 to 75° F. and duration of bath 15 to 20 minutes. This bath at low temperature possesses the advantage of being antipyretic without the danger of chilling. It is very stimulating. It is useful in relieving all congested conditions, *e.g.*, heart in pneumonia and scarlet fever; it is also of service in coma and delirium accompanying low fevers. For the pains of ataxia it is most beneficial.

Full Bath enjoys perhaps of hydropathic therapeutic measures the widest application. It is otherwise closely identified with the name of Brand. Its sovereign realm is in typhoid fever. The tub full of water 60° F. to 75° is placed alongside the bed. The patient spared every excitement is lifted into the tub. A glass of whiskey is previously administered to combat the shock. Once in the tub friction of the entire surface is maintained throughout, while cold water is passed over the chest. Only

if the pulse shows signs of acceleration removal is indicated. At the expiration of 15 minutes the patient is replaced in bed by careful lifting and allowed to dry if temperature is below 103° F. by covering with sheets; if above 103 he is dried in five minutes. To combat shock hot bottles may have to be used. The Brand bath is indicated the moment the temperature reaches 103° F. and is to be repeated every three hours until the temperature is below 103.

Baruch when he suspects that he is dealing with a case of typhoid fever proceeds at once to use ablutions every two or three hours, applies an abdominal compress between the ablutions, and then orders a sheet bath of from 80° F. to 70° F. On the fourth day he orders a friction bath at 90° for fifteen minutes, to be succeeded in four hours by others at 85°, 80°, 75° and 70° F. When the diagnosis becomes positive the baths must be administered in a six foot tub placed alongside of the bed, 18 inches from the floor. The temperature of the bath should never be less than 65° F., but cold enough to produce good reaction—70° to 75° being the average.

Many modifications of the Brand cold bath have been suggested and employed by various writers, as the graduated bath of Ziemssen, the tepid bath of Riess, but on the whole the Brand method has proved itself by the experience of the majority of medical practitioners who have employed the treatment as the most effective. All the advocates of the cold bath treatment of typhoid fever lay much stress upon the mechanical stimulation of the skin during the bath. Jacobi, writing on cold baths in the treatment of typhoid fever, is not entirely in favor of the Brand method. He states that since the introduction of the Brand treatment in the Mount Sinai Hospital that, although there has been a reduction in the typhoid fever mortality of a little over 2 per cent., there has been an increase in the number of cases of pneumonia and phlebitis and a decrease of those of furunculosis and nephritis. Relapses have increased 25. per cent.

The death rate in the relapse cases before and since the introduction of the Brand treatment is practically the same. It has not reduced the number of complicated cases as a whole, but has decreased the number of deaths from toxæmia in the causation of the mortality of typhoid fever.

Jacobi is of the opinion that the dangers of cold bathing are not encountered in warm bathing, while a bath of 95° or 90° F., even when of short duration, will reduce a temperature of 104° or 106°. He therefore holds that warm bathing should be the principal treatment of all typhoid fevers.

Graduated Half-Bath is a half bath in which the patient is placed in the water made to cool rapidly by the addition of cold water. Friction is kept up constantly.

Indications. In the hyperpyrexia of pneumonia begin with temperature of 80-90° F., and in scarlatina initial temperature should be 50-60° F.

Warm Bath comprises a temperature of between 90-106° F. Its principal use is in calming and soothing the patient.

A use to which the permanent warm bath in which patients are kept is that of extensive burns. They are kept therein for days, the water being changed continuously. For large bed sores and sloughing carcinomas of the bowel and pemphigus it is of great value.

Douche is the application of water from a height and under pressure. A pressure of three atmospheres or a fall equivalent to 3 to 5 feet is the ordinary douche. If the water issues from a pipe it is styled a *jet douche* and if attached to a hose it is called a *mobile douche*. By partially obstructing the nozzle the douche becomes fanshaped and the rain bath ensues, which is a combination of douches.

Douches should be always of brief duration, 3 to 10 minutes, and they are called for in debilitated conditions requiring powerful stimulus, *e. g.*, paresthesia and hysteria. Chronic inflammatory conditions of joints are benefited by Scotch douche, *i. e.*, the alternation of a hot and cold stream. The douche combines the advantages of temperature and mechanical pressure and is the most plastic of the hydriatic measures.

Baruch is an advocate of hydrotherapy in the treatment of phthisis. He has adopted the following methods at the Montefiore Home and Hospital for Consumptives: After a thorough cleansing with soap and water a day is allowed to elapse. The patient is wrapped snugly in a thin blanket like a mummy (unless rectal temperature is above 100°). He is allowed to lie for half an hour or longer unless he perspires. In afebrile cases it may be necessary to cover with additional blankets, the object being to fill the cutaneous arterioles preparatory to being treated with water. The face is bathed with water at 50° F. After drying, the patient is turned on the abdomen and the back is similarly treated. The extremities are not treated. Patient is gently dried, dressed and, if afebrile, ordered into the open air for a gentle walk. Febrile cases are returned to bed. This treatment is repeated daily, with reduction of two degrees of water temperature at each ablution until 60° F. are reached. Now the ablution is performed just as the patient emerges warm from bed, as follows: Standing in a foot-tub containing sufficient water at 100° F. to cover the feet to the malleoli, he receives a rapid

friction bath with water at 90°, omitting the upper extremities, after which he is dried and sent into the open air if his rectal temperature is below 100°F. The water temperature is reduced daily two or five degrees until 60° F. are reached. Now the ablution is replaced by affusion, which consists of pouring four basinfuls of water at 90° F., previously held in readiness over the body. The patient standing in a foot-tub having the feet covered with water at 100°, water is dipped from a vessel previously in readiness and poured with force over each shoulder and back and chest. Rapid drying while standing on a warm towel completes the procedure. Beginning with a warm temperature at 90°, it is daily reduced a few degrees until 60° or even 50° are reached. This process may be repeated daily. In febrile cases the water temperature should not go below 65°.

M. Bart says that he has never derived such satisfaction in treatment in febrile diseases in children, especially scarlet fever and cholera infection, as since adopting the use of bath-tub in all severe cases. As to temperature the same results can be obtained with a bath at 90° for a child that would require one at 70° for an adult. In all ordinary cases 10 to 12 minutes duration is sufficient, in some cases 5 to 8 minutes. The soothing effect of the cold bath on the child is a strong argument in its favor. The benefits of the bath are greatly increased by the free application of cold water to the head while the child is in the tub. Hot baths are indicated not in acute febrile conditions but in the chronic stages characterized by exhaustion.

Within recent years the treatment of pneumonia by hydrotherapy has come into vogue; opinions, however, as to the efficacy of this form of treatment are by no means unanimous. A comparatively few medical practitioners hold the treatment in high favor, others find it useful employed to a limited extent, while the remainder forewear it entirely. Baruch, in the pneumonic fevers of children, uses the gradually reduced full bath, placing the child's entire trunk into water at 96°, using continuous friction over the body; while another person adds ice water, so as not to touch the body, until the bath water is reduced to 85 or 80°—duration five to eight minutes. Such bath should be followed by drying and friction.

Sitz Bath is taken in a sitting attitude, the water 40 to 50° F. reaching to the umbilicus. It is of great service in the treatment of intraabdominal and intrapelvic inflamed conditions. Its duration should be 5 to 10 minutes.

Warm sitz baths are effective by withdrawing blood from the cerebral circulation. For inflammatory pelvic conditions a hot sitz bath is very

Odon Tuszka recommends hydrotherapy under four different forms in treatment of acute and chronic diseases of the female pelvic contents. These are the sitz baths, irrigations, packs or compresses and continuous application of heat or cold by means of water coils. Of these the sitz bath is the most widely applicable and useful; the portion immersed should be from the middle of the thighs to the umbilicus. The effect of such a cold bath is to produce plethora of the cerebral vessels, with attendant eye symptoms, buzzing in the ears, dizziness, increased respiratory and cardiac activity, with a pulse first rapid and irregular and then slow. The causes of these symptoms is the strong vasoconstriction due to reflex stimulation of the splanchnic nerves and which produce a local drop in temperature and reduced blood current at the surface, with opposite effects at the periphery and in the interior. This is the result of a bath of short duration, which is indicated in all conditions of atony, relaxation, etc., when there is no inflammation; if, however, it be continued for from 15 to 20 minutes, contraction of the deep vessels and hyperemia of surface takes place. Warm sitz baths produce superficial congestion and anemia of the pelvic viscera, but here the reaction sets in much sooner than with the cold applications and a state of great relaxation supervenes, which contraindicates the procedure in any conditions in which congestion or hemorrhage is to be feared.

C. M. Green strongly advises the use of *hot water immersion bath* in cases of threatening eclampsia. Not only does it produce profuse diaphoresis and reduce blood tension, but it acts as a marked sedative to the nervous system. The water should be as hot as can be borne, and the patient should remain therein until profuse perspiration of the face shows that the sweat glands are in full activity. When free perspiration has been induced, the patient should be rolled in a blanket, placed in bed and covered with several blankets.

The hot vaginal douche, although largely used, is perhaps not so widely employed as was formerly the case. The temperature recommended is from 107° to 120° F. In many gynecological cases, however, the use of hot water is not recommended.

Max Ruffe demonstrated the fact many years ago that the prolonged use of water at 115° to 120° F. results in paralysis of the blood vessels, producing a passive congestion, which continues for a considerable length of time after the application has ceased. Therefore, hot applications should not be unduly prolonged. Ten to twelve minutes is probably sufficiently long for an application of this nature. To counteract any harmful effects of hot applications a cold bag may be applied over the

heart during the treatment, and by the application of heat to the back of the neck to dilate the vertebral arteries. In those cases in which chronic anemia and relaxation and lack of tone in the tissues are prominent symptoms, water at a lower temperature may be applied. Irrigation at 80°, or even 75°, often produces good results in cases in which hot applications are not desirable.

The *hot air bath* may be given in a specially constructed or in an improvised cabinet, or in bed. One form of the hot air cabinet consists of a wooden box, the front and top of which are hinged, the latter having a circular opening for the neck. Within the box is an adjustable seat, beneath which are steam coil radiators that supply the heat, the temperature of which is ascertained by means of a thermometer whose bulb is within the box. The patient, enveloped in a sheet, seats himself and the cabinet is closed, the open space between the neck and the border of the circular opening being filled in by a large towel. The temperature may vary from 150° to 250° F., and the duration may be six minutes to an hour.

The mode of giving the hot air bath in bed is thus described by Solis Cohen: The patient is stripped and placed between blankets. Two or three large hoops are securely fastened across the bed and over them are placed several blankets, which must be tucked tightly on all sides and around the patient's neck and shoulders. Over the top a piece of rubber sheeting or a spread may be placed. A lamp is placed on the stand at the foot of the bed and the hot air is conveyed by means of an elbow of tin pipe, one end of which fits over the lamp, while the other rests on the metal hoops beneath the blankets. The patient is left in the bath for from a half to three-quarters of an hour. After the bath the hoops are removed first, and the blankets then are taken out one at a time, beginning with the one next the patient. In all the procedures to induce sweating a patient is given a pint of hot or cold fluid drink. The hot air bath may be given to heat the skin in preparation for a cold application, the duration then being not more than six to twelve minutes; or it may be employed to rid the body of an excess, of the normal constituents as in obesity, rheumatism, gout, dropsical states, etc., or of abnormal poisons, as in Bright's disease, plumbism, diabetes, etc.

The *steam bath* is usually given in the steam cabinet. A steam-tight chest into which steam is conveyed. The effects and therapeutic uses are the same as in the hot air bath.

The *sand bath* consists of sea sand heated to 113° to 122° F., and a layer placed in a tub. The patient lies upon this and is covered up to his

neck with hot sand and then with hot blankets, remaining so for from half an hour to an hour and a half.

The *Turkish or Russian bath*. The person treated is subjected to the influence of heated watery vapor. In the Roman bath the hottest chamber, the "Calidarium" or "Sudatorium," is heated by dry air to a temperature of 133° to 140° F. and the perspiration is more free than in vapor baths. These baths may be followed by soaping, rubbing, douching and a plunge in cold water. The effect of these baths is the same as that of other hot baths, but in a somewhat accentuated form. Treatment of inebriety by means of Turkish baths is very successful as an adjunct to other therapeutic measures. The heated air of the bath induces the discharge through the skin of poisons collected in the system. The skin is rendered active, the circulation is aided, and many of the elements of disease are thrown off. The Turkish bath to a large extent fulfills the office of a sewage filter to the body. The secondary action results from the profuse sweating, and lastly as a result of the alternate warm and cold douching, the vasomotor energy of the vessels is increased. The Turkish bath or some form of hot air bath is indispensable in the treatment of inebriety.

Carbon dioxid douches are given with water saturated with carbon dioxid by means of a special apparatus, thereby increasing the stimulative effect.

There are a number of artificial baths which are used by some medical practitioners, more especially in the treatment of diseases of infancy and childhood. The beneficial effects of such baths are probably due to the effects of heat or cold and friction employed with ordinary water baths.

Aromatic Bath. About six ounces each of chamomile flowers, calamus roots and peppermint leaves are tied up in a muslin bag and thrown into a warm bath. These are recommended in marasmus, infantile spinal and other forms of paralysis, in sclerema, etc.

Bran Bath. Two or three pounds of wheat bran are boiled for about an hour in three quarts of water. The decanted liquor is added to the bath. It is used in intertrigo, eczema, pemphigus, lichen, strophulus, etc.

Malt Bath. A few ounces of malt extract are added to a bath. Malt baths are advised in cases of rachitis, spasm of the glottis, and in general debility.

Mercurial Bath. This form of bath is employed as an adjuvant in the treatment of syphilis. It is usually prepared by the addition of 20 to

30 grains of calomel, or 0.5 to 1.0 gm. ($7\frac{1}{2}$ to 15 grs.) of trichlorid of mercury.

Mustard Bath. Two or three ounces of ground mustard are digested in a few pints of tepid water and added to the bath. The temperature of the bath may vary between 100° F. to 106° F. It may be administered in the form of a sitz bath, full or foot bath. The patient should remain in the bath for from three to ten minutes. Mustard baths are indicated in collapse, shock or heart failure from any cause, in sudden congestion of the lungs or brain, etc.

Sea Salt Bath. About a pound of sea salt is dissolved in a bath of four or five gallons. It is stimulating in its effects, and useful in rachitis, various forms of paralysis, etc.

Soap Bath. This kind of bath is employed in the treatment of prurigo, lichen, strophulus, scabies, etc. It is prepared by the addition of from three to six ounces of soft green soap to five gallons of water.

Sulphur Bath. A half to one ounce of potassium sulphuret should be added to each bath. In some cases the addition of about three ounces of animal gelatin is of advantage. Sulphur baths are used with advantage in rheumatism, eczema, prurigo, urticaria, lead poisoning, etc.

Herman Sheffield holds that a good rule to apply in the treatment of diseases of infancy and childhood is never to give a drug when any other remedial agent may be employed, and thinks that there is no other therapeutic measure which can be carried out with so much ease and advantage as hydrotherapeutics. Discretion, however, must be used in the employment of hydrotherapy in the treatment of the young. Neither extreme heat nor extreme cold should be employed in the treatment of diseases of children. Heat should be avoided on account of the severe depression, and cold because of the shock it is apt to produce.

Williams uses *evaporation baths* for reducing temperature, because the application of cold water taxes the strength of the patient, owing to the fact of the lack of conveniences in ordinary practice for such a bath, and of persons who know how they should be given.

The directions for giving evaporation baths are these: Give a bath whenever the temperature is 102° or 102.5° F.; have the patient lie on a blanket during the bath; cover him with one thickness of surgeons' gauze, which, when moistened, shall fit the skin perfectly, and sprinkle the gauze with water at about 115° F. Note the amount of water evaporated, and be guided by this in giving the bath, not by the time required to evaporate the water, the rapidity of the evaporation depending largely on the moisture in the air. Have as little clothing on the patient as

possible, night and day, or so long as the temperature is 102° F. or more; only a sheet is necessary; in private practice the patient may be without covering.

Hydrotherapeutics has been now placed upon a rational practical basis, and is a valuable part of the physician's armamentarium. The external use of water is indicated in various diseases, both acute and chronic. Cold is our best and safest antipyretic, and its tonic effect upon the nervous system can hardly be overestimated. Hot baths are invaluable as an aid to the proper working of the kidneys and the excretory organs, assisting these to eliminate the poisons which collect in the intestinal canal, brought about by injudicious eating and drinking, and which cause autointoxication and in time lead to serious organic disease.—*The Dietetic and Hygienic Gazette.*

Antiphlogistine versus Opium.

Inflamed states of the various organs of the body frequently give rise to pain of such urgent character as to demand active steps looking to its relief. Upon seeing the patient for the first time (he has called his physician because his suffering has become intolerable), the medical attendant is met with a peremptory demand for relief from the suffering.

With a willingness, which frequently overrides their better judgment, some physicians resort to the hypodermic needle indiscriminately, and, in too many cases, a greater evil has followed the lesser one. The free habit of using morphine or some other form of opium is not a judicious practice, and for several reasons. The exact seat of an inflammation, for instance, might become difficult to locate, and thus a clear diagnosis interfered with. But the greater objection to the use of opium is the possibility of adding a recruit to the ever growing army of habitues.

Every time there occurs to a doctor the apparent need for opium he should deliberate well before resort is had to the needle. If, after careful consideration, his best judgment advises the use of opium, it should be given in some form by mouth. If the needle is used the patient at once knows what is getting, but he is not so likely to acquire this information if it be given otherwise.

For relieving the pain of the inflammations Antiphlogistine will easily take the place of opium. The relief following may not be so prompt and so complete, but the edge of the suffering is taken off within a short time, and soon the patient is in a comfortable condition, and has escaped the possibility of becoming addicted to a drug. There is not the likelihood that a patient, relieved from pain by it, will begin eating or using

Antiphlogistine in any other way—which likelihood is the greatest disadvantage of opium.

In the future let your morphine become stale, and keep your Antiphlogistine fresh—use it in inflammation.—*The Medical Era*.

Ammonium Benzoate.

The therapeutic action of ammonium benzoate is very limited, but when indicated fills its place well. The most important use of this remedy is in what is commonly called "burning urine," *i. e.*, a burning sensation in the urethra when urinating and no specific disease present. This is a complaint often met and one not very easily relieved unless the indicated remedy is used. Ammonium benzoate is indicated when the urine is alkaline, while lithium benzoate is the remedy when it is hyperacid. This remedy is diuretic and it is claimed that its influence depends entirely upon the benzoic acid the compound contains. Benzoic acid is eliminated as hippuric acid and the ammonia as nitric acid. Ammonium benzoate is employed chiefly for its diuretic influence, but it can be employed in cases where it is desirable to make the urine decidedly acid as in cases of catarrh of the bladder when the urine is loaded with phosphates which are dissolved by this acidulation. I think seven and one-half grains is an average dose. The dose ranges from one to thirty grains. It can be dissolved in water and taken, or, what some consider better, administered in cachets or capsules.—T. A. BURNETT in *Los Angeles Journal*.

Codeine.

This drug, according to Butler, is one-fourth as toxic and effective as morphine. It is less depressing and more stimulant, does not constipate, cause headache or nausea, and rarely leads to the formation of a habit. Codeine seems to exert a special, selective, sedative power over the pneumogastric nerve, hence its value in irritative laryngeal, pharyngeal and phthisical coughs with scanty secretion. Like morphine, it has proved of value in checking the progress of saccharin diabetes, and it has been used for long periods, without the formation of the drug habit, inasmuch as when glycosuria was brought to a termination by dietary and other measures, the cessation of the use of codeine was not followed by any special distress. In the treatment of the morphine habit codeine has not proved as successful as was once thought. One-eighth of a grain of morphine will give more relief and comfort to the patient than one or even two grains of codeine, and when the codeine habit has been established as a substitute for morphine, it is only a question of time when the

patient will revert to his old drug. The effects of codeine on the alimentary canal are remarkable, in that it assuages pain as well or better than morphine and nevertheless does not check the secretions or peristalsis notably, unless the latter is excessive as in dysentery.—*Lancet Clinic*.

Calomel Injections for Syphilis.

For the purpose of injection, 1 grain of calomel is suspended in 10 minims of liquid paraffin, and may be injected once a week for three weeks. These injections are, however, extremely painful, and are particularly liable to cause mercurial stomatitis and nodosities in the buttocks, from the inflammatory exudation around the deposit of mercury. These injections constitute the most powerful method of administering mercury, and should therefore be reserved for those urgent cases only, in which a very rapid effect is required, such as in cerebral and special syphilis. Fournier, however recommends calomel injections in the following conditions:—chronic palmar and plantar syphilides, depapillating glossitis, sclerosing glossitis, tertiary syphilis of the larynx and phagedæna. The advantages of the treatment of syphilis by injections are, that the dose of mercury may be readily controlled by the Surgeon, and the treatment may be kept more private. The chief disadvantages are the pain which the patient suffers, and the formation of nodosities at the region of injection.—*The Practitioner*.

Milk and Beauty.

The beauty cure that is engaging the attention of fashionable society at the moment is the milk cure, and its only fault is that it is ridiculously cheap for a cure adopted by fashionable society. The milk is taken inwardly and outwardly. A glass of hot milk slowly sipped at night composes the mind and prepares the body for useful slumber. Milk is rubbed into the face at night with a piece of soft linen and allowed to dry and in the morning the face is washed in milk, but no soap must be used. Skin regularly washed in milk is declared to be proof against sunburn.—*The Indian Lancet*.

The reducing power of urine after urotropin (*Arch. of Pediat.*, 1907, vol. xxiv, p. 275.)—I. A. Abt finds that the administration of urotropin for some time will cause the urine to reduce copper solutions. The urine does not show the fermentation test or act on polarised light. The continued use of the drug may give rise to albuminuria, with blood casts.—*The British Journal of Children's Diseases*.

PÆDIATRICS.

The significance of certain abnormal stools in early life.*

BY

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Mr. President and Gentlemen of the New York Post-Graduate clinical Society.

In our work among infants and children, we must utilize every means at our command to establish the diagnosis. Observation coupled with logical deduction is, to my mind, the pediatrician's greatest aid.

In these days of laboratory work, we are often thus enabled to verify or complete our diagnosis; and the tendency is, especially in or near the metropolitan centers, to lean on, and abuse this means at our command, by making superficial examination and trusting to the pathologist or bacteriologist for further aid.

Those of you who are of necessity thrown more upon your own resources are often better clinicians than your city colleague; and the purpose of my paper to-day is, to point out the importance of the careful examination of the stools of infants and children, and draw to your attention the wealth of knowledge which is thus obtainable, and its practical application to the case in hand.

To ask for and inspect a stool at a respectful distance, as is the common practice, means the loss of a valuable clinical aid; and in fact may mean the loss of the baby; for the statistics show that the infant mortality in the first year of life varies from 19½ to 39% and of these 60 to 70% die of gastrointestinal disease.

In a general way it will be the aim to show what deductions we may easily make from a careful inspection of an abnormal stool, provided we have in mind certain fundamental facts relating to all dejecta. No chemical laboratory or even a microscope is necessary. Careful inspection, some litmus paper and a spatula are alone required.

We will recollect that the stools of the breast fed infant may be from one to five in number, and numerically we should not judge them as abnormal provided their color, consistency and odor are within the normal limits. Their color should be a yellow or orange tint, produced by the

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unchanged bilirubin; they should be acid in reaction, and the odor should not be disagreeable. The amount of residue found in the stools will be in direct proportion to the amount ingested or retained.

This later statement however does not hold true for babies artificially fed. And this leads me to review the essential differences of the stools of the breast fed and artificially fed infant.

The stools of the babe taking cow's milk, which differs chemically in its proteids, fat and ferments from human milk, and also physically and biologically, it is readily seen, will and must differ from the stools of the naturally fed infant. Therefore these stools are not to be considered as evidences of a diseased condition, unless they exhibit certain characteristics to be mentioned below. Cow's milk normally produces stools lighter in color, bulkier, and numerically fewer, Rubner and Heubner have shown that in bottle-fed children the feces amount to 4.7 % of the food ingested. The pale color is accounted for by the fact that the reducing power of the breast-fed infant's intestine is so weak, that the bilirubin can pass through unchanged, while with cow's milk the process of digestion is slower and necessarily carried further with the resultant pale color, and the odor of decomposition. It is this tardy disposition of the proteid elements which exposes the food of the bottle-fed child to intestinal putrefaction. Then, too, we must expect a greater bacterial flora in the feces of the bottle-fed, and should find an alkaline or neutral reaction.

Those who are artificially fed are very apt to show abnormal stools and unfortunately the condition is many times brought about by improper or careless feeding prescriptions of the doctor in charge.

Infant feeding to-day is a science, but it must also be an art. The text books have been confusing because the subject has in the past ten years undergone a radical change. Let me urge upon you to make yourselves proficient in this acquired art, and your practice among the babies will be a delight instead of a bugbear.

The systematic examination and correct interpretation of the stools will naturally assist you in properly regulating the dietetic therapeutics of infancy, for it will act as a criterion of the kind of disturbance in indigestion which is present.

The character of the dejecta will depend upon the class or kind of food given, upon the functional development of the alimentary canal, upon the influences to which the fecal mass is subjected (as, for example, intestinal ferments and bacteria), and upon the amount of absorption which has taken place.

Happily, we are not so often concerned with abnormal stools of the breast-fed infant. If, however, we examine a freshly passed stool from

an infant fed on human milk, and with an improvised spatula spread out a central portion, we may find that there are yellow masses of flakes present, surrounded by green mucus; these are often mistaken for curds, but in reality are made up of fats; firm hard curds are not found in mother's milk, but only in cow's milk.

Such a stool in an infant not steadily gaining would indicate a scanty milk supply, and if the stools were frequent, dark green and mucoid, with very little milk residue, the maternal font would surely be found to be at a low ebb. The indication would be alternate feedings, and regulation of the diet and life of the nurse.

In the bottle-fed baby we are often confronted with the symptom of constipation or diarrhoea. Either of these conditions may arise from too much proteid in the food. The constipated stool may be friable (like dry puty), while the loose stool due to this cause can be smoothed out and the masses will be readily soluble in ether, proving them to be fat and not curds, as they are so often designated. True curds are formed in the stomach by the action of lactic or an excess of hydrochloric acid on the paracasein. They are hard, smooth, yellowish on the outside and white within, with a cheesy odor when opened, and will not dissolve in ether. The remedy for too much proteid is evident. Correct the formula, and if true curds are present, examine the character of the milk. The milk may have been sterilized; properly dilute it with gruels, or chemically modify it, and the stools will assume the normal type.

A loose, greasy, sour-smelling, acid movement resembling scrambled eggs, if presented will indicate excessive fat in the dietary. Examination of the breast milk or a study of the formula will show that the facts ingested have been persistently too high, 3 % fat should never be exceeded by an infant to the third or fourth month, and more than 4% should never be prescribed.

Mothers often erroneously describe the large quantities of mucus present in their babies' stools. The doctor must remember that some mucus is normal; that it should then, however, be found intimately mixed with the feces; that barley water produces a slimy stool often mistaken for mucus, and that undigested food elements also cause this error. If mucus is seen in any quantity with the naked eye by a competent observer, it is pathological and means inflammation, usually located in the large intestine, of a subacute or chronic form. If the disease is in the small intestine the mucus is mixed with the stool and it is usually found to be bile-stained.

The hint for correction is embodied in the following fact; that the greater the amount of nonassimilable substances present, the greater the amount of mucus.

The color question in the stools, (like the color question in the South) is often perplexing, worthy of study and not yet decided. The color of the stools when immediately passed should be considered. If the absorptive process has been delayed and putrefactive changes have taken place in the proteid elements, the bilirubin will be changed to biliverdin, but it is not known whether the reaction itself, or chromogenic bacteria produce the coloration. Nitric acid will prove whether or not we are dealing with bile salts by the familiar play of colors. The green color in conjunction with mucus and fecal acid reaction, indicate true intestinal disease and call for radical change in the dietary. Acid fermentation will require such temporary food as albumenwater for its correction, while alkaline putrefaction will respond to the carbohydrate foods, as dextrinized gruels.

The brownish movements often seen, if we can exclude certain drugs and blood, are due to the ingestion of undextrined starches alone, or to a preponderance of carbohydrates in proprietary infant foods.

A stool that presents a foamy, bubbling appearance and is acid in reaction, will signify the presence of too much sugar in the mixture, as is often the case in condensed milk feedings.

We have not hinted at the bacterial examination of the stools, as it has proven of no clinical value to us as yet; but the reaction of the stool is a help to us, and should be ascertained and always taken from the middle of a fresh stool. If a decided blue color is obtained, we have alkaline proteid putrefaction going on, and if the color of the litmus is unchanged we have acid fermentation due to the breaking down of the fats and carbohydrates.

Again, the stools may be of considerable aid to us in certain pathological conditions as illustrations of the intensity of the process in the Summer diarrhoeas and in such pathological states as intussusception, in which we have frequent paroxysmal discharges with blood but little or no feces. Rectal polypi should be strongly suspected where we have a normal stool, except for a blood coating; these hemorrhages being intermittent in character and not necessarily connected with a hard or scybalous mass.

Thus we may correct the sins of omission and commission against the laws of hygiene and physiology as evidenced in the alvine discharges. If we take advantage of our opportunities in this direction we will be stimulated by our success to exercise the same care and logical attitude in all our efforts to further the well-being of our patient.—*The Post-graduate.*

THE ANTISEPTIC.

JANUARY, 1908.

We wish all our Readers A Happy New Year.

Is Tuberculosis on the increase in India?



WE have heard it stated for some time past that Tuberculosis is on the increase in India. The statement was made by some Medical men in Calcutta and Bombay took it up. The localities from which the alarm was sounded are quite significant. For if any one is asked to pick out the two most Tuberculous areas in the whole of India, the Gangetic valley and the West Coast of India will most assuredly be selected. The peculiar climatic conditions of these localities favour the development of tuberculosis and naturally one finds more of Tuberculosis in those parts than anywhere else in India. But that is different from saying that in India Tuberculosis is on the increase. There is no doubt that the Medical men who have made the statement that Tuberculosis is on the increase have and perhaps are seeing more and more cases of Tuberculosis. This will especially be true of Hospital Physicians and Hospital Surgeons. They may be able to prove from Hospital statistics that every year there is an increase in the number of Tuberculous cases treated in their Hospitals. But to our mind that is not satisfactory evidence of the increase of Tuberculosis in this country. The people are gradually getting greater confidence in our hospital system of treatment and are having recourse to them more and more. Therefore the Hospital statistics on this point cannot be relied upon to prove that Tuberculosis is on the increase. On the other hand some statistics from the J. J. Hospital, Bombay which were produced before the Factory Commission by Captain C. F. Gordon-Tucker, I. M. S. just prove the reverse. Captain Gordon-Tucker produced a statement showing some of the diseases treated for the past 10 years in the J. J. Hospital, Bombay, from which we take the following:—

Year.	Tubercular diseases.	Diseases of Respiratory system.
1904	1185	2016
1905	1111	1619
1906	780	1443

1908.]

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These figures certainly do not prove that Tuberculosis is on the increase. So far as we are concerned we are not prepared to draw the opposite inference from these figures either. A big General Hospital in a Presidency town attracts patients from all parts of the Presidency, and because in a certain year a few more or a few less patients suffering from a particular complaint seek admission into the Hospital, no correct conclusion as to the greater or less prevalence of that disease in the Presidency town can be drawn.

We have heard it stated by more than one Medical man in Bombay that Phthisis prevails to an abnormal extent among the Mill hands in Bombay and that these operatives suffer from this disease to a greater extent than other labourers. The statement appears to be a plausible one. Here are large numbers of operatives working 13 and 14 hours a day in an unhealthy atmosphere very often loaded with large quantities of dust fibre. There would be nothing surprising if Phthisis prevailed to a large extent among the mill population. There are some statistics produced to prove this tendency to Phthisis among the mill population in Bombay. Two sets of figures are given one for the Factory labourers and the other for the general labourers. Here they are (we shall only give the figures for 3 years).

Year.	Death from Phthisis.	Rate per 1000 of population.	Death from other respiratory disease.	Rate per 1000 of population.	General death rate from all causes per 1000.
General Labourers.					
1903	343	1.99	521	3.03	39.55
1904	310	1.80	858	4.99	35.36
1905	432	2.51	841	4.89	42.29
Factory Labourers.					
1903	270	2.23	180	1.46	24.95
1904	358	2.92	329	2.68	19.16
1906	401	3.27	201	1.62	25.88

These are the figures relied on to prove that among the Factory labourers in Bombay Phthisis is on the increase. Of course we presume that by Phthisis is meant Tubercular Phthisis. Very well. These figures evidently were not obtained from the J. J. Hospital, for we are told by a Medical man on the staff of that Hospital that in that Hospital records Factory labourers are not distinguished from other labourers. So from a large number of "labourers" suffering from Phthisis these differentiated

figures between general labourers and factory labourers could not be evolved. And if they are figures from the Health department of the Corporation they are quite useless for any scientific classification as not even 5 p. c. of the deaths are certified by qualified Medical men. And if they are not certified by qualified Medical men who drew the fine distinction between Phthisis and other diseases of the respiratory system? There is one other point which strikes us as rather peculiar about these figures. While they show a higher tendency for Phthisis among the mill hands over the general labourers there is no such marked tendency among them for other diseases of the respiratory organs. One would have thought that long continued inhalation of dust laden atmosphere together with sudden changes from the warm spinning and weaving sheds into the external air would have rendered the mill hands very susceptible to Bronchitis and Emphysema, Pneumonia, Fibroid Phthisis and similar other respiratory diseases. But no. According to these figures the Factory labourer suffers even less than the general labourer from respiratory affections other than Phthisis.

We have so far had no satisfactory evidence as to the general increase of Tuberculosis in India. We have had still less evidence of a greater tendency for Phthisis among the mill hands. We have been on the look out for any evidence bearing on this point. Till now we have seen over fifty thousand mill hands and seen no particular evidence of Tubercle in them. We have closely examined over 3000 children employed in the Mill industry and scrutinised for signs of scrofula, and failed to detect them except in a very very small number of these children.

But we have noticed one thing among the mill population in Bombay, and that is that there are very few men over 45 or 50 years to be seen in any of the mills. Close investigation has elicited the fact that Bombay mill hands when they get to 45 or 50 retire and go to their villages and spend the rest of their lives there. The mill hands in Bombay chiefly come from Ratnagiri and Kolaba. The death rates of these two places from respiratory diseases as well as in the aggregate do not prove the existence of much of Phthisis among the retired mill hands. Here are the figures.

	1904.	Deaths from respiratory diseases per thousand.	General death rate per thousand.
Bombay City		9.62	55.63
Kolaba ..		1.17	39.65
Ratnagiri ..		2.88	25.64

	1905.			
Bombay City		12.19	62.33	
Kolaba ..		.93	31.11	
Ratnagiri ..		1.65	22.75	
	1906.			
Bombay City		20.02	68.98	
Kolaba ..		.82	39.24	
Ratnagiri ..		1.75	21.39	

So the Tubercular extension theory so far, is not proved. But all the same it *may* be true. We shall look for further evidence.

CORRESPONDENCE.

Hospital Assistants and Their Grievances.

SIR,

Although the Hospital Assistant of a place is known to almost every one in his station, very few people know anything about his qualifications, general, educational, or professional, and even much less about his manifold grievances.

One has to pass his matriculation or entrance examination of an Indian University, and then undergo a professional course extending to over four years in a recognised Medical School—theoretical as well as practical in the different branches of Medical Science—and at the end of his course submit himself to a pretty stiff examination, and it is only after getting through this ordeal one can become a Hospital Assistant to find himself on the verge of starvation passing rich with Rs. 25 per mensem. It may not be out of place to mention that this pittance is practically found to be quite insufficient even for the bare necessities of life. "The Hindu" sometime back, in its leading article "Hard as the nether mill stone" says:—"Hardly four measures of rice could be had for a rupee. The case of other food grains is even worse. Firewood sells at Rs. 13 a ton, Ghee at Rs. 2 a viss. The price of oils is gone up. The value of every necessary of life has now increased and living, in the case of the poor, has become more and more difficult and even impossible. The condition of those of small means and little income * * * can better be imagined than described." When the cost of living has thus enormously increased at several fold, one may well pause and consider what corresponding improvement there has been in the pay, prospects and status of the poor Hospital Assistant. The only answer to this question is nothing but "*none*," in spite of the fact that the present Hospital Assistant is a matriculate where as his confrere of old had to be taught the rudiments of English in the Medical School or General Hospital wards; although the present Hospital Assistant has to undergo a complete curriculum of practical and theoretical training for not less than four years (as opposed to the training of old of one or two years, and

that too of a very elementary nature) his monthly starting salary remains at Rs. 25 which was fixed perhaps during the middle or first half of the last century.

When the qualifications (general as well as professional), efficiency and usefulness of the Hospital Assistant have thus gone on steadily increasing owing to a variety of causes, his initial salary remains at the same figure in spite of the painful fact that the cost of living has largely increased, so much so, that many a Hospital Assistant, unless he has got some ancestral property to depend upon for a rainy day, finds it hard to make both ends meet; still he has to pass for a respectable Gentleman earning Rs. 25 per mensem. If we compare the pay, status and prospects of subordinate officers in other Departments, such as Dy. Tahsildars, Tahsildars, Police Inspectors and even the newly created Sub-Inspectors of Police, one will find at a glance that the modern Hospital Assistant is sweated and a good deal of injustice done to him. A Clerk in a Taluk office or Deputy Collector's office on Rs. 15 to-day may one day become a Tahsildar or even a Deputy Collector; compare with this the unenviable lot of the Hospital Assistant; a Hospital Assistant on Rs. 25 to-day will be a Hospital Assistant for life, and however meritorious his services may be, he can never aspire to anything more than the modest sum of Rs. 70, the *summum bonum*, even after putting in a lifetime of approved service under the Government. Even railway companies, coffee and tea estates and other private employers give the Hospital Assistant much better prospects in life and the start is generally not less than Rs. 50 per mensem. Under these circumstances, it needs no further comment than the mere mention of it to say that the lot of the Hospital Assistant in service is not only hard and unenviable, but positively unendurable, and quite incommensurate with the demands made upon his qualifications and services, and last though not least, upon his patience. The arduous and responsible work he is often called upon to perform in connection with epidemics, &c., is well known to many an I. M. S. Officer; whether it is plague, cholera, famine, fairs or festivals, it has become the painful necessity for the Hospital Assistant to toil on hardly knowing what rest or recreation is. As if all this were not enough, there is another very important phase of the question; I know of a Hospital Assistant who during the single month of February 1906 (a month of only 28 days) was posted to three different stations in a district on three different varieties of duties.

When a Hospital Assistant is tossed and kicked about like a foot ball from one part of the Presidency to another every now and then, it is well nigh impossible to know what a home is and to have even ordinary home comforts; it is not merely the Hospital Assistant that thus suffers but also his wife, children, relatives and dependants, who have the misfortune to be with him.

The above unpalatable truths have been sent to you for publication as an humble appeal to all those high minded and impartial members of His Majesty's

I. M. S. Officers, the impartial and strict personal assistant to the Surgeon-General, noble and well meaning Surgeon-General with the Government of Madras and such others that are placed in high situations, who may through their influence and recommendation back up the just cause of the poor and down-trodden Hospital Assistants, and ameliorate their condition to an endurable extent. For years we have been crying, as it were, in the wilderness, and it is time that our benevolent and benign Government does something in the near future to better our prospects and status.

It is true that there was in 1902 something of a re-organization, but the net result of it has been rather small; true it is that a grade on Rs. 45 has been introduced, and a senior grade on Rs. 70 is given to 45 p. c. or so of the Hospital Assistants. But the drawbacks are more substantial; whereas according to the old regulations a Hospital Assistant could attain his first grade after 14 years' service according to the new regulations under the re-organization system he has to put in 15 years' service before attaining that grade. The loss one suffers on this account by way of travelling allowances, &c., is not inconsiderable, especially as transfers have been very frequent for sometime past, as had already been pointed out in a leading article in one of the back issues of your Journal.

In conclusion I request you, not only to sympathise with us but to lend your strong support to us in our cause, and to move the Government to do justice to a useful, humble, over worked and under paid class of Government servants who know no home, no rest, no recreations but are always at the mercy of famine, plague, pestilence, cholera and what not?

CIVIL HOSPITAL ASSISTANT.

Promotion of Hospital Assistants.

SIR,

The dates in the letter published in your last issue under the above heading. "4th July 1907" should be 4th July 1901 in the 6th line of the first, and 7th and 10th lines of the last paras.

If "the promotion of each Hospital Assistant who entered service before 4th July 1901, is regulated by total length of service" there will be no reason for grumbling. It is the word "first" in the G. O. referred to, that gives room for argument.

"Justice"

OUR BOOK-SHELF.

1. Serum Therapy of Plague in India.
2. Memorandum on the recent observations in the Serum Therapy of Plague in India.

BY

KHAN BAHADUR N. H. CHOKSY, M. D.,
Special Assistant Health Officer, Bombay.

(A Review.)

In the Antiseptic of August 1906 we reviewed Dr. Choksy's able book on the Lustig Serum treatment of plague in Bombay. The author had at his disposal 968 cases, of which every second patient was treated with serum and the rest were under ordinary treatment and acted as "controls." The 484 serum cases showed a mortality rate of 68 p.c. which was 11.5 p.c. less than that in the other series. Having regard also to the low mortality of 44.61 p. c. in 130 serum cases treated in private practice, it is easy to find that serum treatment produces more favourable results. In spite of the inherent drawback of the alternate system where there was an unequal distribution of moribund and convalescent patients which must, to a certain extent, affect the correctness of the results, the Indian Plague Commission held that "the diminution of plague mortality by 11.5 p. c. in such an extensive series of cases treated with serum seems to usconclusive as to benefit having been derived from the administration of the serum."

When the Yersin-Roux serum was tried during 1905 and 1906 it was done "on such cases *only in the acute stage* who had a fair, but, by no means a favourable, pulse. All semi-convalescent and convalescent patients were also excluded from serum treatment for obvious reasons." Later on, this method of selection seems to have been made from patients that had been ill for only five days on the ground that from the sixth day they are usually dying or beginning to get well—a fact to the truth of which any one who has worked in a plague hospital could testify. Out of 622 cases, 279 were rejected as unfit for this treatment and all of them died except 30 who were mostly convalescents. 262 were treated with serum with a mortality rate of 60.3 p. c. The remaining 81 "control" cases were treated with ordinary drugs under the alternate system along with 81 serum cases forming part of the 262 mentioned above. In these two sets the difference in favour of the serum was 13.6 p.c. If the serum control and rejected cases are added, the total *i.e.*, 622 treated in the

Mahratta Hospital in 1905 and 1906, showed a death rate of 75.4 p.c. while it was 83.2 in 406 cases treated without serum in the same hospital in 1905, the character of the epidemic in both the years being the same. It could therefore be safely inferred that the use of serum even in a limited number of cases during an epidemic favourably affects the death rate of the season.

In his Memorandum to the Sanitary Commissioner to the Government of India, Dr. Choksy brings the statistics up to July 1907. 238 patients were selected and treated with serum of whom 97 recovered, the death rate being 59.2 p.c. In the second series 200 selected cases were treated with serum alternately with the same number of approximately similar cases as controls and the mortality rate was 63.5 p.c. in the former and 74 p.c. in the latter. The death rate in the total number of serum cases was 60.9 p.c. and that of the control cases 73 p.c. The number of private cases treated with serum was 234 of whom 99 died, the rate of mortality being only 40.7 p.c. This favourable result is due to early treatment and probably also to the better social condition of private patients. Although there are no control cases to compare with them, the low death rate shows that serum (Lustig or Yersin-Roux) is a valuable remedy and saves more lives.

Our readers should go through the two booklets of Dr. Choksy where they will find much interesting and suggestive information regarding the symptoms, course and treatment of plague cases. There appears to have been some controversy about the exact similarity of serum and control cases. Nobody who has had some experience of plague could think it possible to secure two sets of cases absolutely similar in all respects. Dr. Choksy has made out at least, a strong *prima facie* case for serum treatment and if it is extended, as it deserves to be, to a much larger number of cases and the results compared with those of an equal number of control cases of the same nature, the minor defects complained of in both the groups may fairly equalize in the end and the present cause of difference disappear enabling the various workers in the field to discuss the results of their observations on a common basis.

M. RAMASWAMI PILLAI.

We have received and added to our exchange list the "Vaidya Sindu", a high class monthly record of the progress of the Ayurvedic, Unani and European Medical Science, edited by V. D. Pandit, F. A. U., Nasik. This is one of the best Vernacular Medical Journals and we commend it to our Kanarese Physicians and Surgeons.

We acknowledge, with thanks, receipt of the following journals :—

The Polyclinic. The Bristol Medico-Chirurgical Journal. The Medical Brief. The International Journal of Surgery. The California Medical Journal. The American Journal of Clinical Medicine. The Dietetic and Hygienic Gazette. The Good Health. The Indian Medical Gazette. The Practical Medicine. The British Journal of Children's Diseases. The Sanitary Record and Journal of Sanitary and Municipal Engineering. The Northumberland and Durham Medical Journal. The Canada Lancet. The American Journal of Ophthalmology. The China Medical Missionary Journal. The Medical Review of Reviews. The Post-Graduate. The Therapist. The Canadian Practitioner and Review. The Australasian Medical Gazette. The Caledonian Medical Journal. The Montreal Medical Journal. The Louisville Monthly Journal of Medicine and Surgery. The Monthly Cyclopædia of Practical Medicine. The Buffalo Medical Journal. The Ophthalmoscope. The Dental Era. The Madras Law Times. The Interstate Medical Journal. The Medical Notes and Queries. The Calcutta Medical Journal. Folia Therapeutica. The All-India Hospital Assistants' Journal. The Hospital Assistant. The New York State Journal of Medicine. The International Therapeutics. The Hospital. The Medical Review. The Vaidya Sindhu.

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Original Articles.

* THE RÔLE OF PEDICULI IN THE SKIN DISEASES OF CHILDREN.

BY

JAMES BURNET, M. A., M. D., M. R. C. P. (EDIN.)



WITH but few exceptions the skin affections met with in infants and children are the result either of congenital syphilis or of pediculosis. In making this statement we must not overlook the fact that eczema does not necessarily come under either of these categories, although it must be remembered that many cases of eczema are secondary to skin lesions produced by pediculi. Then, again, psoriasis in children is more frequently due to a rheumatic diathesis than to any other cause, as I have tried to prove in a recent paper (*Reports of the Soc. for the Study of Disease in Children*, London, 1907). Scabies, too, is not due to pediculi, but to the itch insect, which, however, belongs to the same natural order as pediculi. Accordingly we might almost include scabies in the list of pediculous infestations. With these few exceptions, and others too rare to mention, we may say generally that congenital syphilis and pediculosis are the causes of most of the skin troubles of infancy and childhood.

When we come to consider that very common skin affection known as urticaria we find that the causes enumerated by writers on skin diseases usually include errors in diet and clothing, but no mention is made of what I believe to be a very common cause, namely, pediculosis. This view has been taken by one or two continental observers, and I am convinced that it is the correct one. In fact the more I study this particular skin disease the more convinced do I become that it is but rarely due to any dietetic error. What led me first of all to suspect a possible causal connection

* Specially contributed to *The Antiseptic*.

between pediculi and urticaria was the fact that in many instances the itching complained of was always most severe at night; in fact in some cases it was only felt after the patient had gone to bed. If we assume that pediculosis is the cause of this skin lesion, then this otherwise unexplainable fact is readily interpreted. Another circumstance which makes me confident as to this causal connection is the rapid way in which many cases are cured when the patients are treated on the assumption that pediculosis is the real cause.

I recall one case in particular in which the patient, a girl of five years, was brought to see me on account of a skin condition for which various ointments and lotions had been tried with little or no benefit. The history of the case pointed distinctly to its being one of urticaria. The child's diet had been restricted to milk and white foods. The itching was always worst at night after the patient was put to bed. I advised that the child should sleep on a sofa with absolutely clean clothes, and that her personal clothing should be changed after she had had a hot soap and water bath. No medicaments, either internal or external, were ordered. The effect was somewhat remarkable. Within a few days the itching had entirely ceased. The sequel is likewise instructive. The parents, who were of the poorer class, after the cure had been effected, allowed the child to occupy her former bed, and within a week the itching and eruption developed as severely as ever. This case, I think, proves the truth of my contention. It is not my only experience. Of one thing I am certain, that many of the powerful lotions and ointments applied in cases of this kind only do harm by actually still further irritating the sensitive skin of the infant or young child. If we could be perfectly sure that urticaria was always due to pediculosis, then nothing more than hot soap and water baths and attention to the bed and to the clothing of the patient would be necessary. The diet I think may safely be left alone.

The fact that urticaria occurs in all classes of the community is no bar to any theory as to its causation. Well-to-do people may easily become infected with pediculi through contact with servants, from sitting in tram-cars or railway carriages, and in a dozen other different ways. The younger the child the more severely will he suffer because of the greater liability of the skin to injury and to the inroads of pediculi.

Impetigo, which may be found on the face or, as the result of subsequent infection, on various parts of the body, is in very many instances merely secondary to pediculosis capitis. When I see a child suffering from impetigo of the face I invariably examine the posterior aspect of the scalp, and the cases are very few indeed in which I am not able to find evidence of pediculi or of their ova in the hair. These children are

often supposed to be run down in health, and so no doubt they are, but the real cause is infection produced by the pediculus capitis. The child scratches the head and then the face, and in this way the mischief is done and an impetigo results. To cure an impetigo, therefore, we must frequently treat the scalp as well, by cutting out the hair over the infected area, and then rubbing in some weak mercurial ointment. When pediculosis capitis is present as well as impetigo, treatment of the latter disease alone is not likely to prove very satisfactory.

Frequently one encounters curious skin conditions for which it is difficult to find a name. The lesions are multiform, and may partake of the nature of papules, wheals, and even pustules. In many of these seemingly obscure cases a cure is rapidly effected by treating the case as one of pediculous infection. These are often the cases which are termed chronic, because no external application seems to do any permanent good. It is a safe rule in the skin diseases of children which present difficulty in diagnosis or in treatment to enquire whether or not they are secondary to some primary lesion which has been overlooked because it is obscured by the eczematous or other condition which has been superinduced. Thus scabies is often unrecognised because the primary and essential lesion is concealed by the eczema which has resulted from the irritation of scratching the affected areas. So, too, with lesions produced by pediculosis. Were this fact always kept in view many intractable skin affections would become readily cured by ordering not medicaments but baths and a change of clothing. The part played by pediculi in the skin disease of childhood is too important to be disregarded, and these few brief reflections, which, by the way, lay no claim to any originality, may serve to stimulate a little more interest in a subject which is too often neglected or overlooked.

* AFFECTIONS OF THE CORNEA.

BY

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[Continued from page 679, Vol. IV. No. 12.]

PART IV.

Before leaving the subject of Treatment of Corneal Ulcers it will be well to say a few words about the treatment of fistula of the cornea and also the best method of dealing with the cicatrix or opacity that remains after a corneal ulcer has healed. Fistula of the cornea is an exceedingly

* Specially contributed to *The Antiseptic*.

difficult affection to deal with. Some good may be done by the use of a miotic so as to prevent glaucomatous hardness, should the fistula close, as it sometimes does, from time to time, the high tension rupturing the cicatrix and opening it again and again until finally sight is completely lost through detachment of the retina, hæmorrhage, severe uveites, etc. Iridectomy is extremely difficult owing to the shallow or almost non-existent anterior chamber. The best operation for corneal fistula is to transplant a conjunctival flap, according to KUHN'S method, after having eurented the anterior surface of the opening. The flap healing to the eurented margin closes up the fistula. KUHN'S method consists in making a conjunctival flap as follows:—An incision is made through the conjunctiva along the margin of the cornea, embracing that part of the cornea where the fistula is leaving the margin of the cornea furthest away from the fistula intact. The incision is about three quarters of the whole corneal circumference. Another incision, something like a very broad pulled out W, is made in the conjunctiva about 6 or 7 m.m. away, and the flap so outlined is dissected up, brought across like a bridge over the fistula, and secured in its new position by means of a suture. In a few days the flap becomes adherent and its upper and lower portions can thus be released with the scissors.

The same method may be used for strengthening the cicatrix of an ulcer where there is prolapse, with dangers of staphyloma and late infection. Another method is that of DA GAMA PINTO. It is described as follows:—"Having in the case of an ulcer with prolapse abscised the prolapsed portion of the iris or in the case of a fistula eurented its margin, the opening in the cornea is covered with a flap cut from the bulbar conjunctiva—and this flap should be twice as large as the opening in order to admit of its shrinkage—the flap is then pushed into the opening by means of a blunt probe. A firm binocular bandage is applied but no iodoform. The eye is not dressed until the third day, when the anterior chamber is often found restored, the iris all in its proper plane, and the conjunctival flap healed into the ulcer. Ultimately all trace of the flap disappears, and an ordinary non-adherent corneal scar is presented."

With regard to corneal opacities, resulting from ulcers due to diseased processes, or loss of corneal substance due to injury, they are usually spoken of either as "nebula" or "leucoma." The term "macula" is seldom used by clinicians in England, although we have the three terms, nebula, macula, and leucoma given in the text books, a nebula being a slight cloud of the cornea seen only with oblique illumination, a macula being more easily seen, and a leucoma being very apparent is a dense intensely white opacity. A macula is generally called a nebula by

clinicians who do not care about being scientifically exact and certainly avoids confusion as the term "macula" is so frequently used for the macula lutea on the retina, a totally different thing altogether. With regard to the treatment of these opacities massage in recent cases, especially those which are slight, using the yellow oxide of mercury ointment may do some good, the eye is massaged with the ointment once or twice daily for four or five minutes at each sitting. Eyes that have old-standing nebulae of the cornea frequently become myopic owing to the defective vision making the habitual close approximation of objects to the eyes a necessity. Concave glasses may improve this, but the best thing for a nebulous cornea often is a stenopæic apparatus. This consists of a black disc with a small central hole or a slit placed in a spectacle frame before a patient's eye; rays of light that are useless and confusing passing through irregular parts of the cornea are thus cut off. An optical iridectomy may often be performed where there is a small portion of clear cornea. Tattooing the leucoma is another useful procedure as it not only improves the appearance of such an eye but it also improves the vision, since diffuse rays of light which have passed through the opacity on to the retina serve no purpose except to confuse the patient or render his vision more blurred. Black pigment in the shape of sterilised Indian ink is used, and if it is successfully inserted in sufficient quantity it renders a white opacity so dark that little or no light can pass through it. DR WECKER'S multiple tattooing needle, an ordinary dissection needle, or better still DR WECKER'S single grooved needle, may be used. The eye being rendered aseptic and cocainised, the ink in the form of a thin paste is spread over the leucoma; then the punctures are made, care being taken not to go too deep. If the grooved needle is used, a number of long canals are made with it parallel to the surface of the leucoma, the instrument being charged like a pen with some of the ink in its groove; the ink is left behind in the opacity on its withdrawal. Some surgeons remove the corneal epithelium over the leucoma and then apply the ink. Care should be taken not to injure the conjunctiva, otherwise that will be tattooed. A forceps armed with rubber may be used, but I think it better to simply hold the eye with the fingers and not to use a speculum. In Paris I have seen sterilised coloured pigment used so as to get the colour of the iris, and I believe in some cases this has been very successful. Several sittings are required for successful tattooings. There are some more or less rare forms of keratitis, all of them producing ulceration which should be mentioned. These are (1) neuro-paralytic keratitis; (2) kerato-malacia; (3) filamentary keratitis; (4) herpes corneæ febrilis; (5) dendiform keratitis; (6) bullous keratitis and (7) keratitis aspergillina.

1. *The neuro-paralytic variety* depends upon paralysis of the ophthalmic divisions of the 5th cranial nerve. It is now known that the 5th nerve has no influence over the nutrition of the cornea, and an ulceration dependent upon its paralysis is not, therefore, a trophic process as was formerly thought. The ulceration is really due to diminished reflex lid-action with an absence of tear secretion so that the surface becomes dry and the corneal epithelium disorganised. This form of ulcerative keratitis is uncommon, when the 5th nerve is paralysed, because a sufficient moisture of the surface of the cornea can be maintained through the consensual action of the eyelids of the affected eye with those of the opposite eye, and there is also the fact that stimulation of the opposite cornea results somewhat in reflex lachrymation of the affected eye. When, however, there is proptosis or when there is paralysis of the facial, causing nictitation to be incomplete we would then expect the cornea to become dry and this form of keratitis to appear. It will be readily understood that when the protection of the reflexes is absent owing to double paralysis of the 5th nerve this form of keratitis naturally supervenes. It does not recur as a result of extirpation of the Gasserian ganglion for severe neuralgia because the cornea is still maintained sufficiently moist as explained above.

The treatment of neuro-paralytic keratitis mainly consists of fastening the lids together with a dermic suture or bandaging in mild cases, and dealing with the purulent infiltration or ulceration according to the lines I have already laid down for these conditions.

2. *Kerato-malacia* is a rare affection occurring in infants during the first year of life. They are miserable, debilitated, badly nourished children. The affection begins at or near the centre of the cornea and spreads until the whole cornea is involved except a narrow margin. It is accompanied by iritis, and generally there is a slight epithelial xerosis of the bulbar conjunctiva. This latter condition, however, may be absent. The ulceration is a rapid one due to the layers of the cornea over an interstitial infiltration becoming necrosed. It is too severe and rapid for purulent ulceration. Of course perforation with prolapse of iris occurs very rapidly, and panophthalmitis may occur if the patient lives long enough, but these infants generally die of pneumonia or diarrhoea before this can happen. The fatal termination is due to a general invasion of the streptococcus. Treatment is of very little avail. Possibly the injection of anti-streptococcus toxin, if given in time, might save some of these children, but all that can generally be done is to apply warm fomentations with the use of non-irritating antiseptic lotions and dressing, and give calomel internally.

3. *Fadchen* or *Filamentary Keratitis* is a very rare form of inflammatory disease of the cornea. The characteristic thing about it is that, along with the ulceration, we have fine threads hanging down from the corneal surface looking like spun glass. These threads are about 3 *m.ms.* in length; they are composed of twisted proliferating epithelial cells, and each of them ends in a bullous enlargement. This latter is caused by degeneration of the epithelium. The condition arises either from a superficial injury of the cornea or else it is due to a bullous or herpetic keratitis. The treatment consists in protecting the eye with a bandage and the instillation of ammonium chloride 3% every 2 hours.

4. *Herpes Corneæ Febrilis*.—Herpes of the cornea takes place under two conditions; one is, as part of the affection known as herpes zoster ophthalmicus and the other is an eruption on the cornea in febrile affections, such as intermittent fever, typhoid and any acute inflammatory affection of the respiratory tract. It sometimes occurs as a primary affection or seems to do so, as we find there has been no acute general disturbance to account for it, not even a common cold. It is not very common to see the case early enough to see the vesicles; usually they have burst and all we see are the tiny ulcers that are the result.

While the vesicles have lasted there has been much photophobia and lachrymation with a feeling in the eye of a foreign body, but this disappears as soon as the vesicles burst. If we are fortunate enough to see the vesicles before they burst, they appear as minute clear vesicles in groups, each about 0.5 *m.m.* in diameter, or they may be as large as 1 *m.m.* in diameter. Sometimes these groups form in a line which runs obliquely or vertically across the cornea, giving somewhat the appearance of a string of beads. The appearance both before and after the vesicles have burst is quite different from phlyctenular keratitis, the only other affection of the cornea at all like it. The treatment consists in protection of the eye, atropine, warm fomentations, and after the vesicles have burst a weak Pagenstæker's ointment combined with atropine. If the vesicles cause much pain they may be ruptured by dusting a little calomel into the eye or by brushing them with a camel hair pencil soaked in boric acid lotion. The application of a few drops cocaine solution 2% greatly relieves the pain of these vesicles, or one of the newer local anæsthetics can be used for this purpose. Novocain, for instance, is equally efficacious. Herpes febrilis differs from herpes zoster corneæ in the cornea being sensitive. In the zoster cases the cornea is anæsthetic and you do not have the string of beads appearance.

(To be Continued.)

* RHEUMATISM AND GOUT.

BY

SURGEON MAJOR R. E. WRAFTER, B. M. S. (*Retired.*)

Dehra Dun.

Rheumatism and Gout are affections having a strong tendency to change their seat, and are dependent upon the presence in the system of some poisonous material which probably accumulates there in consequence of mal-assimilation. The poison supposed to occasion the most frequent of these disorders—Rheumatism—is an excess of lactic acid in the blood; and it is during an effort at its elimination that the phenomena of Rheumatism, or at least the phenomena of Acute Rheumatism, are best studied. The rheumatic poison has a singular predilection for the fibrous, serous, and muscular textures. Hence we find it attacking principally the joints, the fascia, the endocardium and pericardium, and the muscles in various parts of the body. According to its main forms, it is sometimes divided into articular and muscular; but the more usual division into acute and chronic is the simpler, and will answer our purpose best. Acute Rheumatism, or Rheumatic Fever, as it is called, is a very common malady, and though rarely fatal at once, is very frequently the cause of early demise from its effects upon the heart. Here the poison gives rise to the symptoms of an acute, active disease, and attacks especially the larger joints. These swell, become hot red, tense, tender, and the seat of pain aggravated by the slightest movement; an effusion also takes place into the surrounding structures, or into them and the synovial membranes of the joint itself. The rheumatic or local inflammation may either remain confined to the joints first affected until the disease is over, or, what is more common, it shifts from joint to joint (metastasis), implicating most of the large ones in succession, yet often invading fresh joints before the swelling has subsided in the parts first attacked. The articular disorder is ushered in and accompanied by high fever, soon attended with a full, bounding pulse, with profuse, sour perspirations, with a deeply-coated tongue, a scanty, turbid, highly acid urine, and a countenance expressive of suffering. The fever is generally in proportion to the number of joints involved; the temperature runs up to about 102° or 103° Fahr. very soon after the occurrence of the malady, and remains steady, with slight evening exacerbations and morning remissions when the joint affection is yielding, but with renewal it rises when fresh joints are being implicated. As the disease disappears, the fever temperature gradually subsides to normal. There is ordinarily little difficulty in recognizing the complaint; the pains in the joints, their tumefaction and tenderness, the shifting character of the disorder, the un-

* Specially contributed to *The Antiseptic*.

impaired intelligence, and the peculiar constitutional symptoms, form a group of phenomena eminently characteristic. In truth, excluding acute gout, the only affections at all likely to be confounded with acute articular rheumatism are Acute Synovitis, and Phlegmasia Dolens or white leg. The diagnosis of these disorders occurs, for the most part, in connection with inflammatory diseases; it only remains expedient to point out the marks of similitude and contrast between acute articular rheumatism and the other malady just mentioned, namely, white leg. Acute Synovitis resulting from external injury, or from cold, occasions, like articular rheumatism, pain and heat in the joint, with distension between the sides of the patella and the condyles of the femur. But the disorder, except perhaps if it happens in a rheumatic constitution, does not affect more than one joint, and, as there is scarcely any or no effusion into the surrounding tissues, the outline of the joint can be distinctly discerned, and fluctuation is readily detected. The least complex forms of Synovitis are those that follow some injury without open wound, but even in them certain distinctions are made. Often, too, the accumulation of fluid reaches an extent far greater than in rheumatic inflammation; moreover, the febrile and constitutional derangement is not so severe as in acute rheumatism, and the affection has no tendency to change its seat. Still, we must not forget that Acute Synovitis may be rheumatic also. Milk leg, or Phlegmasia Dolens occurs most usually in women after delivery, or as a sequel of continued fever, from obstruction of the femoral vein, or of the femoral and iliac veins. Generally, only one leg swells, and this becomes throughout, or sometimes only around the calf, preternaturally white, firm, hot and shining. The tumefaction is uniform, and very painful, especially so when touched. It does not pit or pits but slightly, upon pressure, except at the lower part. There is in some cases tenderness with a sense of hardness in the course of the femoral vein, though this is by no means constant; and we are apt to find signs of much debility and of altered blood and febrile symptoms. But these are unlike the peculiar constitutional disturbance of rheumatism, and equally dissimilar are the history of the case and the local signs. Among the latter, two giving rise to striking differences may be mentioned—the almost entire loss of power in the affected limb in Phlegmasia Dolens, and the much higher temperature it shows by the clinical thermometer than the other members. And while alluding to its heat, we may remark that an increase of general temperature corresponds to an increase of pain and swelling in the limb, and of constitutional disquiet. Rheumatism may be modified in its manifestations by happening in connection with, or consequent upon other disorders. For instance, the febrile phenomena may be of an adynamic type when the disease

occurs consecutively to typhoid fever, or we may find the local signs of acute rheumatism strangely mixed with the symptoms of puerperal fever, and in some of these cases pus may fill the tumid joints; or the presence of the syphilitic poison or of gonorrhœa may imprint peculiar features upon the complaint. Thus, in gonorrhœal rheumatism there is usually less febrile distress; the articular pain is not so severe or acute; the integument covering the affected joint is apt to retain its normal colour; there may be but one joint—and there are not generally many—implicated; the inflammation is confined to the synovial membrane, and a copious sero-fibrinous exudation occurs; the joint-affection, which is pre-eminently an affection of one knee, shows a tendency to shift, and resembles rather an acute or sub-acute rheumatoid arthritis than acute rheumatism; the eye, too, unlike what happens in ordinary acute rheumatic fever, is often attacked. There is no copious sweating, and no disturbance of the heart. But the most significant of all signs is finding a discharge from the urethra, which diminishes when the gonorrhœal rheumatism sets in, but which does not cease. The disorder does not come on early in a case of gonorrhœa; and the joint-affection appears really to be of pyæmic origin. It disappears only very slowly. It is by all these signs that we judge of the malady with much more certainty than by the mere presence of gonorrhœa with the symptoms of rheumatism, for the former may be a mere coincidence. The traits of an attack of acute rheumatism are frequently altered by certain complications in internal organs which the contaminated blood is apt to occasion. Prominent among them are the cardiac disorders, which are in fact so common that they may be looked upon as forming part of the rheumatic manifestation rather than as being one of its complications. The affection of the membranes of the heart disturbs the pulse and renders it irregular, hurries the breathing, may give rise to gastric disturbance, and, unless carefully managed, is very prone to leave some lasting sequela. It is, as a rule, not difficult of diagnosis; but this is a matter we should investigate, while examining the physical signs of Endocarditis and Pericarditis. Certain cardiac phenomena, such as extreme pain without evidence of recent valvular affection, pain which may shoot to the neck and shoulder and be associated with signs of great irritability of the heart or of heart-failure, have been by recent observers, as by Peter and Letulle, attributed either to rheumatic myocarditis, or to an abnormal excitement of the cardiac plexus of rheumatic origin. Other complications are inflammations of the lung, particularly of the bronchial tubes and of the pleura; an affection of the kidney which is generally regarded as due to pyæmic or embolic infarction; and, though not often, cerebro-spinal disturbances, exhibiting themselves by headache,

violent delirium, convulsions, and coma, and occurring either in connection with a thoracic disorder, or slowly in consequence of the action of the vitiated blood on the nervous centres, or in consequence of Bright's disease or of multiple capillary embolism, or of the sudden exhaustion of the nervous centres. This explanation has been more particularly applied to the cases in which an excessive temperature attends the rapidly-developed signs of cerebral disturbance, a temperature of 106 or more. But, speaking from a bedside point of view, we must remember that such cases are comparatively rare and that the rheumatic delirium is far from being always of the same nature. It may be of the kind just mentioned. It may develop itself with or without the sign of cardiac complaint. It may come on early in the disorder during the violence of the fever, or late, and clearly from debility and impoverished blood, yielding to nourishment and stimulants. It is rarely the result of meningitis. The delirium which attends cerebral rheumatism may be marked by great talkativeness, or, on the other hand, the patient may be extremely taciturn or silent. Insanity may follow the brain-symptoms of acute rheumatism. In a few instances of rheumatism we find arthritis arising, and especially inflammation of the fibrous structures of the aorta. The great artery which proceeds from the left ventricle of the heart. This condition may be suspected should we observe intense general uneasiness and distress, with pain, increased pulsation, a distinct murmur in the course of the vessel, and tumultuous action of the heart without there being obvious physical signs of disease of that organ present; still, the diagnosis is never a positive one. Acute rheumatism is not a disease either of children or of persons advanced in years. There is no doubt the malady is most common among the poorer classes of society who cannot protect themselves so effectually as their more wealthy brethren. Its duration is very variable. By judicious treatment it may be conquered in about a fortnight to three weeks, but often convalescence does not set in for four, or five weeks. It rarely ends fatally; its cardiac consequences are more to be feared than the acute onset. Cases occur not unfrequently in which the inflammation in the joints is somewhat lingering, and in which the febrile symptoms are not intense. These cases form an intermediate class between acute and chronic rheumatism, and are generally spoken of as sub-acute. The disorder is more apt than the acute variety to affect the muscles as well as the joints; nay, the former may be alone attacked. It may be observed in the joints of one extremity, or in one joint, and might then be mistaken for synovitis. But the dissimilar history of the complaint will guard against error; no accident has happened to account for the swelling of the joint, and often the patient will tell us that he has had previously an attack of rheumatism. The sub-acute form of rheumatism is very apt to be confounded with rheumatic arthritis known as Rheumatic gout or Rheumatoid Arthritis.

(To be continued.)

Cases and Comments.

A Case of Remarkable Dilatability of the Female Urethra.

BY

S. ARLEND.

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A Hindu female named Latchmamah, aged about 38 years, a resident of Mariamanahally, about 8 miles from Rajadurg, was brought to the Hospital on the morning of the 22nd September last, complaining of inability to void her urine freely and feeling as if something hard was obstructing the urinary passage and that this state of affairs lasted for about 15 days. After obtaining her consent for bi-manual examination and with the aid of the midwife, she was placed on the table in the female ward in the usual lithotomy position. On examination, the meatus urinarius was found wide open and distended, exposing a portion of a large hard calculus within its ring, and was found projecting and the canal was much distended. Attempts to extract the calculus with a pair of forceps proved futile as the stone was slipping away behind. Thereupon I introduced the forefinger of my left-hand into the vagina along its anterior wall, and placing the left thumb over the projecting part of the canal to steady the stone and prevent it from slipping away, and with a very small slit which I found necessary, all under antiseptic precautions, I succeeded in extracting it with the alternate use of the forceps and manipulation.

The calculus measured 2 inches long and $2\frac{1}{2}$ inches in circumference, oval in shape, and resembled the type of the large variety of *Zizyphus Jujuba* fruit. It had a nearly smooth surface with no facets, weighed when dry 80 grains and was composed of phosphate of lime. The patient did not appear to have been in any way exhausted nor to have suffered from complete retention of urine or pain or in any way the worse for it. She was able to pass her water in small quantities though not freely and completely. There was only about three ounces of urine in the bladder which she voided after the removal of the stone. The index finger could be freely introduced into the open canal owing to its dilatation.

The extreme dilatability of the female urethra is no doubt due to the canal not being surrounded by dense resisting structures as is the case in the male urethra. The kind disposition of the female urethra to dilate seemed to have saved the above mentioned patient from much sufferings that might be caused by complete retention. Nature seems to have been

pleased to grant this kind of immunity to the female sex in order, perhaps, to compensate for the sufferings which they are subject to in connection with their generative organs. It would be interesting to know the greatest dilatation which the female urethra could be made or forced to subject itself under similar circumstances.

Our Contemporaries.

MEDICINE.

Malarial Fever, its History, Pathology, Symptoms and Diagnosis.

BY

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Anderson, Ind.

Malaria, or paludism, is a subject that has occupied the medical mind since the days of Hippocrates, who, in his treatise on "Airs," attributes various diseases to a mixture of the blood with vitiated air. It has not been many years since this idea was as vigorously advocated by medical writers as in the time of Hippocrates; and, indeed, their teaching was not more rational.

I have often thought how misleading and unfortunate this idea was of attributing any definite entity to malaria, a contracted word, derived from the Italian *mala aria*, whose signification, from a medical point of view, means much or nothing. Bad air is made to cover a multitude of ailments, as well as a multiplicity of ignorance in the realm of pathology.

Vitiated air undoubtedly does lessen the resistive force of our bodies and thereby renders our system more susceptible to the encroachment of disease, but it is not the disease *per se*.

Is it not a fact that all diseases have their specific origin, and that the same cause will not change its identity by some will-o'-the-wisp, and thereby produce a different disease at the will of chance, but the same germ will always produce the same pathological condition.

Telluric intoxication, while faulty, is a better word than malaria, because it expresses more accurately the idea intended by the word malaria, namely, that certain diseases were produced by the action of air coming from soil, the energy of which is not expended upon vegetation. However, this term and the idea it conveys is rejected by a large number of medical men of the more advanced school of science.

Miasm, one of the many appellations for autumnal and vernal fevers, seems to be so thoroughly ingrafted upon the medical mind that it is al-

most impossible to disabuse the mind of the fact that "malarial fever" is not caused by "floating and impalpable morbid effluvia, the product of the decay or putrefaction of animal and vegetable substances." However unreasonable it may appear to some conservative students of the causation of disease, and however imperfectly established may appear the hypothesis that malarial diseases are caused solely by invasion of the body by a specific bacteria, this is the view of almost all modern writers on the subject.

The hardest thing for one to do is to cast off and get away from one's early training, to completely divest one's self of preconceived and time-honored opinions, which has been so zealously advocated, and so universally accepted as settled facts.

The first substantial proof of the bacterial origin of malarial disease is that produced by Professor Tommasi-Crudeli, of Rome (1870), and Professor Klebs, of Prague, who discovered a microscopic fungus in the lower strata of the air of a malarial region in Italy, and in the soil and stagnant waters, which they name *bacillus malariae*. They found that this micro-organism, when cultivated in various media, and properly diluted, and injected under the skin of dogs, produced in them typical intermittent fever.

Before the ever-advancing tide of discovery old opinions and settled convictions give way to new ideas and uncontrovertible facts in their onward march.

We find this explanation of the causation of malarial fever supplanted, to a great extent, by Laveran, who first advanced the idea that there is always a peculiar organism (*hematogoon*) not found in any other disease.

This parasite has been carefully studied by Professor Osler and Professor Councilman, of John Hopkins University, and Professor Dock of the University of Michigan. The clinical aspect of the different forms and phases of malarial fever are dependent upon and associated with the various forms and stages of the development of the *plasmodium malariae*.

Since the publication of Laveran's discovery, his observations have been confirmed and enlarged upon by many observers in all parts of the world, and while but little is yet known of the life of the organisms, outside of the human body, its causative relation to malarial fever has been conclusively demonstrated.

Golgi (1885-86) proved the relation existing between the different stages of the malarial paroxysm and the cycle of the development of the parasite.

He demonstrated that there were two varieties of the parasites, as belonging each to quartan and tertian fever.

In 1889, Marchiafava and Celli recognized particular forms associated with estivo-autumnal fever.

Sternberg, in 1880, repeated the experiments of Klebs and Tommasi-Crudeli, in the vicinity of New Orleans. His labors failed to confirm that of Tommasi-Crudeli and Klebs.

Sternberg's conclusions are as follows:

"Later researches have also failed to confirm the supposed discovery of Klebs and Tommasi-Crudeli, and it is now generally admitted that there is no satisfactory evidence in favor of this view that micro-organisms of this class are concerned in the etiology of malarial fevers."

On the other hand, we have now very extended observations, which indicate that the blood parasite discovered by Laveran (1881) in the blood of patients suffering from various forms of malarial fevers, bears an etiological relation to fevers of this class.

This hematozoon belongs to quite a different class of micro-organisms. It is more frequently spoken of at present as the *plasmodium malariae*.

"Personal observation," says Professor Von Jaksch, "no less than the study of what has been written on the subject, have satisfied the author that the blood in malaria contains specific organisms, as Laveran first pointed out, and that these specific organisms are the determining cause of the disease."

Hehir, after careful investigations of the blood of malarial patients, in India, has concluded that there were constantly present in such blood eight different forms, including the phagocytes, which may be observed to take an active part in the morbid process.

Mode of Infection.—If the contention as to the etiology of malarial disease is well founded, there can be but one answer as to infection, and that is by inoculation.

It has been conclusively proven by inoculation experiments that infection may take place through the skin, and, in addition, that the different varieties of malarial parasites have each a more or less definite period of incubation, when infection is brought about in this manner. The insects that do the inoculation are most likely to be the mosquito.

The plausibility of the inoculation theory is very much enhanced when comparisons are made between malaria and other parasitic blood infections of man and the lower animals.

The tsetse-fly disease of Africa is due to a flagellata infusorium. The fly, by feeding upon an animal already infected, and then biting a healthy animal, will act as a carrier of the parasite from the infected to the uninfected.

The transmission of the Texas fever, which is due to a protozoon, is another good illustration.

Also, the *filaria sanguinis hominis* is carried from the sick to the well by the mosquito. The very various circumstances associated with the conditions under which malaria prevails may be reconciled with the theory that the mosquito is an important factor in the transmission of the parasite.

Consider, for instance, the relative immunity possessed by those sleeping in the upper stories of a dwelling in malarious regions is susceptible of explanation by the limited extent to which the flight of mosquitoes is elevated above ground.

Further, it is well known that mosquitoes are unlikely to leave the region in which they were generated, and that as soon as a strong wind prevails they seek such shelter that the wind carries them for a limited distance only.

The name of the mosquito which is successful in inoculating persons is *Culex penicillaris* or the so-called *Culex malaria*.

Symptomatology—Periods of Incubation.—A certain time elapses after inoculation takes place, and this period of incubation varies from a few hours to many days, before there is any manifestation of disturbance in the functions.

No definite period has, as yet, been fixed at which the malarial explosion takes place, the variations being due to the intensity of the poison, susceptibility, and the resistive force of the individual. The average is stated to be about fourteen days.

In a large proportion of cases there are symptoms indicating that the plasmodium malariae are developing in the blood in two to four days after infection.

This is termed the prodromal stage of the disease.

The affected one experiences a feeling of lassitude and weariness; there is back-ache and general muscular soreness; an irresistible desire to yawn and stretch, and especially is this so in the early morning and on cold, damp days. He complains of headache, his tongue is coated, his stomach is squeamish, and, as evening comes on, his skin becomes warm and dry, his sleep is more or less disturbed by dreams, and, as morning approaches, will usher in a profuse sweat.

In another class of cases the prodromes consist merely in a coated tongue, icteric, sclerotic, and a general yellowish hue of the skin, languor, loss of appetite, and constipation; the urine is loaded with bile-pigment, and deposits an abundance of urates.

The patient may gradually drift into fever, or the disease may begin abruptly in the midst of apparently full health. Intermittent fever occurs in paroxysms, separated by intermission or non-febrile periods.

The paroxysms may recur daily, constituting the quotidian form, or alternate days, the tertian form since it recurs on the third day. There is also a quartan form; exceptionally there may be a double quotidian, with one strong and one mild attack each day; a double tertian, with a daily onset, that of every second day being relatively weak; a double quartan, having two attacks in every three days.

Febrile paroxysms usually recur at a definite hour each day or alternate day. Recurrence of successive paroxysms, at an earlier hour for each attack, is termed anticipating, and indicates an increasing malarial influence. When the paroxysms come at a later period, with successive attacks, it is termed postponing or retarding, and indicates a subsidence of the malarial influence.

Clinical Types.—Malarial fevers are divided into two main groups: first, the fevers due to infection with ordinary tertian and quartan parasites of Golgi; second, the fever due to infection with the estivo-autumnal or crescent-forming parasite.

Under these two main groups, which may also be termed, respectively the regularly intermittent fevers and the more irregular, often continued or sub-continued fevers, may be differentiated three types of fever:

1. Tertian fevers; single and double infections.
2. Quartan fever; single, double and triple.

Both types comprising the first group of fevers.

3. The second group of fevers; the estivo-autumnal.

Tertian fever is of common occurrence in almost all malarial districts. The quartan type, while the common fever in a few malarial regions, such as Sicily, is, in most regions, where other varieties of infection are common, of rare occurrence.

Tertian Intermittent Fever.—In this form of fever the infection is with a single group of tertian parasites, each individual member of which is in approximately the same stage of development; so that segmentation of all, with which the paroxysm is associated, takes place at about the same time.

The time necessary for the completion of the cycle of development of the tertian parasite is about forty-eight hours, sometimes a little more, sometimes a little less, the latter more commonly than the former.

The paroxysm may be divided into three stages: the chill, the fever, and the sweating stage.

Unpleasant feelings, ill-defined sensations of discomfort, usually precede the chill, and in an individual who has ever experienced a malarial outbreak, are peculiarly significant of what is to follow. Even at this time some elevation of the temperature may be noted, while the surface of the body is cold, and the skin, owing to the erection of the hair-follicles presents the condition of goose-flesh; the internal temperature, as determined in the rectum, is high, often 105° or 106° F. The skin is pale, often bluish in color, and the visual disturbances, headache, dizziness, nausea, and vomiting, are common. The pulse is tense, small, and accelerated. The duration of the chill is variable, usually from ten minutes to half an hour, or an hour, or even longer.

The febrile stage gradually supervenes upon the stage of chill, until by repeated flushes of heat, the stage of chill is completely superseded, and the patient throws off the additional bed-clothing which, a short time before, was so gratefully accepted.

The skin becomes hot, dry, and reddened, and a sense of burning heat is complained of; the conjunctivæ are suffused, the pulse rapid, full and bounding; intense headache, dizziness, and, occasionally, delirium occurs, or the patient may be drowsy and somnolent.

Epistaxis, diarrhœa and vomiting are among the less frequently occurring symptoms.

Herpes of the lips and nose, while erythema and urticaria are sometimes seen.

In most cases the splenic tumor may be readily detected.

The duration of this stage is usually four or five hours, and the temperature now attains its greatest elevation.

With the initiation of the sweating stage the patient experiences great relief. At first perspiration is noticed to occur about the forehead and upon the face, but shortly spreads over the whole body, usually becoming most profuse.

The temperature rapidly falls, so that in two or three hours it has reached a subnormal point, where it remains for some time. The patient now sinks into a refreshing sleep.

The intermission continues until the young parasites derived from the segmentation that has caused the first paroxysm, in their turn pass through their cycle of development until the stage of segmentation is attained, and with it occurs the second paroxysm.

The time thus occupied is forty-eight hours, longer or shorter, resulting in anticipation, or retardation of the paroxysm.

During the intermission, the temperature remains subnormal for some hours, and the patient experiences great relief.

Quotidian intermittent fever is the result of two groups of tertian parasites, which is found in the blood of these patients in different stages of development, which reaches maturity, or the stage of segmentation, upon alternate days. This gives birth to the quotidian or daily paroxysms peculiar to single tertian infections.

Because one group may be larger than its congener at the time of inoculation, it is not uncommon for the paroxysms to be tertian in type until the smaller group has attained sufficient size to cause a paroxysm.

As one group may be greater in number, it is not uncommon for the paroxysms produced by this group to be of greater severity than those produced by the lesser group.

The usual order of segmentation is for it to occur at a different hour from each other, and this accounts for the onset of the paroxysms at different hours.

There is no difference in the paroxysm in the quartan fever from that of the tertian fever.

About seventy-two hours is required for the completion of the cycle of development. The coincident paroxysms and segmentation of the parasites occurs every fourth day, an intermission of two days existing between.

The exacerbation marked by three stages of rigor, fever and diaphoresis, of an average duration of about ten to twelve hours.

The characteristic of this type of fever is to occur with great regularity, and to show very little tendency towards retardation.

Double-quartan fever occurs when two groups of quartan parasites exist in the blood at the same time, and attain the stage of segmentation upon successive days.

The exacerbations which take place upon two days in succession, is followed by a day of intermission or rest.

We also have triple-quartan infection, and this is due to the existence in the blood of these groups of quartan parasites, in different stages of development, and segmenting upon successive days.

Here we have daily exacerbations, coupled with all of the phenomena of quotidian intermittent fever.

The Spleen.—The spleen is always involved in malaria. It is enlarged, but its hypertrophy varies in degree. Its firmness or solidity is diminished, often so much so that an attempt to dislodge it results in rupture of its tense capsule, which gives vent to its dissolving pulp.

The parenchyma is frequently the seat of a melanosis, varying in intensity from a dark brown to almost deep black.

The incised surface presents a dark gray-brown or slaty color, and the unpigmented Malpighian corpuscles stand out prominently. The capsule is very thin and easily lacerated. The venous sinuses are dilated, as is revealed by the microscope.

In the parenchyma is crowded a prodigious number of red blood-corpuscles which, to a great extent, is found to contain parasites in all stages of development, and sometimes free parasites are to be found.

One of the marked characteristics is the presence of a large number of phagocytes, particularly the macrophages. White leucocytic phagocytes occur, especially the large-cell variety, which exist in very large numbers.

The peculiarity of the protoplasm cells is seen to contain pigment-granules, in clumps or rods, as well as parasites free or included within their corpuscular host. The parasites seem to complete their cycle of existence while within the macrophages.

The Liver.—The liver is more or less enlarged and congested, and contains a large amount of dark slate-colored pigment, often almost black.

The capillaries, hepatic artery, portal vein, and hepatic vein, when viewed microscopically, are found to contain myriads of parasites.

The branches of the portal vein contain the very largest macrophages, which have originated in the spleen, and which, on account of their large size, obstruct the caliber of the vessels.

The Kidneys.—In the glomeruli, the cortex, and along the course of the vessels in the pyramids, pigmentation may be observed, especially in the glomeruli, and pigment being contained within large leucocytes, which may produce a narrowing of the caliber of the vessels.

Degeneration and desquamation of the capsules of Bowman constitute one of the most serious lesions. In hemoglobinuric, or black-water, fever, the changes in the kidneys are most marked. The kidneys usually

increase in size, of somewhat lessened solidity, and of mixed color, being often pale and anæmic in appearance, and at times they are a darkened color.

There are observed scattered brownish spots, due to pigment deposits, which crowd the epithelium and lumina of the uriniferous tubules.

Upon microscopical examination, the renal epithelium is found to contain pigment, and pigment-rodlets, or fine yellow granular, or dark amorphous masses, are observed to fill the lumina of the uriniferous tubules.

The Brain.—There is usually a distinct localization of the infected blood-corpuscles which appear to take in the cerebral capillaries, and then melanotic discoloration of the cortex may occur, with deep injection of the blood vessels, and, not infrequently, numerous punctiform hæmorrhages.

Parasites in all stages of development, although one stage usually predominates, crowd the cerebral capillaries until, in places, complete obstruction or thrombosis of their lumina takes place.

These parasites, although commonly seen to be within red-blood corpuscles, may be free, or contained, together with pigment or blood corpuscles, within phagocytes.

The Bone Marrow.—The bone-marrow is of brown-red color, sometimes almost black. It is soft, almost diffuent.

The vessels are found to contain developing, as well as sporulating, parasites, and crescents are usually present in abundance. About the periphery of the lumina of the vessels macrophages containing pigment may be found in considerable numbers.

Diagnosis.—The diagnosis of malarial fevers depends upon the result of the examination of the blood, and the more doubtful the case the more it resembles some other affliction, the more necessary is the resort to this means of attaining a positive conclusion.

To a less degree, the diagnosis is established by the results of the therapeutic test: the administration of quinine and the clinical manifestations.

Celli and Guarnieri obtained excellent stained specimens of the parasite in fresh condition, by mixing the blood with ascitic fluid deeply tinged with methylene-blue.

It may be prepared thus: Methylene-blue is dissolved in normal saline solution until the fluid is somewhat deeply colored. The solution is then filtered, sterilized, and set apart in small quantities in thoroughly-

sterilized test-tubes. The point of the finger is then carefully cleaned, a drop of the staining fluid applied to it, and through this the finger is pricked with a needle.

The flowing blood, mixed with the staining fluid, is brought in contact with a cover-glass, and this is placed, preparation-side downwards, upon a slide and examined.

The preparation must be spread in a very thin layer, and it is, therefore, necessary to guard against evaporation.

This may be done by sealing the edge of the cover glass with paraffin wax.

It may be examined first with a fairly-wide aperture of the diaphragm and afterwards with an open condenser, and a good oil-immersion lens.
—*The Medical Brief.*

Some Medical Hæmorrhages.

BY

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[A paper read before the Æsculapian Society].

If we would understand the clinical significance of any particular hæmorrhage, it is essential that we should have clear ideas on the subject of hæmorrhage in general. I make no apology, therefore, for attempting to approach my subject from a panoramic rather than from a microscopical standpoint.

By hæmorrhage is usually understood the passage of blood out of its normal channels either into the outer air or into tissues which receive it reluctantly, and immediately set to work to dispose of it. Hæmorrhage is, therefore, obviously due to a breach of continuity in a blood-vessel. The most obvious cause of such an accident is external violence, which, though it may give rise to such conditions as cerebral, pancreatic, and other internal hæmorrhages, does not come within the scope of my present subject. The other methods by which loss of blood may occur are closely connected with the important subject of blood-pressure. It may occur by the normal pressure acting on inadequate or diseased vessels, or it may result from a supernormal pressure acting on vessels which are virtually and clinically normal. It is, of course, when both these abnormalities are present simultaneously—when, that is, we have a supernormal pressure acting upon diseased or degenerated vessels, that the conditions are most favourable for the occurrence of hæmorrhage. I do not lose sight of the

fact that poisons, whether they be organic or inorganic, are very liable to give rise to hæmorrhages; but inasmuch as the means by which they act are still hidden from us, we are entitled to assume that these means are well within the above category.

Instances of the result of the action of a normal pressure upon inadequate or diseased vessels are to be found in hæmophilia, hæmorrhagia neonatorum, carcinoma, gastric ulcer, and the like. Instances of the action of supernormal blood-pressure upon vessels which are to all intents normal may be seen in some forms of epistaxis and retinal hæmorrhage, in mitral stenosis, in gastrotaxis, and similar conditions. Examples of a supernormal blood-pressure acting on diseased or degenerated vessels are easy to recall; of such are all cases of ruptured aneurysms, most cases of apoplexy, the hæmatemesis of hepatic cirrhosis, and the hæmaturia of granular kidney. If, then, we dismiss the action of a normal blood-pressure upon inadequate or diseased vessels, as being in part too obvious and in part too intricate for our present purposes, we are left with those causes in which a supernormal blood-pressure takes a leading part.

Now, what is the clinical significance of supernormal blood-pressure, or, as it is the unfortunate fashion to call it, high arterial tension? We know what it may lead to; but how does it arise, and how are we to behave in its presence? High blood-pressure of a transient nature may arise in a variety of ways, but the sustained high blood-pressure, with which we are now concerned, arises mainly, if not exclusively, in two ways. It may be the result of toxins circulating in the blood, which, either directly or by way of the nervous system, constrict the peripheral vessels; or it may be the result of a purely defensive measure on the part of the organism, induced voluntarily and of malice aforethought, as necessary to the continuation of life. The attitude which we should adopt in its presence must, therefore, be dictated solely by the causes which have produced it. If we fail to interfere in the first case we are little better than ignorant accessories before the fact; if we presume to interfere in the second, we shall probably have to answer to a very serious charge preferred by our own consciences, even if we escape the attentions of some less accommodating tribunal. Let us then consider some instances of these two causes, and let me ask your forgiveness if for the sake of brevity I seem unduly to dogmatise in matters, the understanding of which is still darkened by the ink of controversy.

It is not, I think, necessary to define the use of the word toxins in this connection beyond saying that it is a generic term used to cover certain products of disordered or defective metabolism whose composition is

little if at all understood, but whose effect is that of causing a general vaso-constriction. These toxins are believed on sufficient grounds to be manufactured in the gastro-intestinal canal, and their presence is unquestionably associated with what is known as the gouty diathesis; the chronic morbid condition, namely, which is liable to dog the footsteps of those who eat too much meat, who breathe too little oxygen, and take too little exercise. By direct irritation of the walls of the vessels, or by irritation of the vaso-motor centre in the medulla, these toxins cause the peripheral vessels to contract, and the blood-pressure immediately rises. The degree of this increment depends, of course, upon the degree of the toxæmia and the length of time during which it has been in operation. In a case of moderate severity, in which the manometer, had it been consulted, would during a period, say, of a few months, have registered 160-180 mm. Hg, there may be no symptoms sufficiently definite to bring the patient to his doctor. He may perhaps notice an undue amount of breathlessness on slight exertion, or momentary attacks of slight giddiness: more often he will notice nothing, though his friends will observe that he has seemed lethargic and out of sorts, and is becoming increasingly irritable. These things are not at all unusual in a busy man who is nearing 50 years of age, and so it is generally agreed that he is overworked and is in need of a tonic and a holiday. His wife's maiden sister therefore gives him some pills containing iron and strychnine which did her so much good when she was run down. And these he takes. Consequently, one evening after dinner, he is stooping down to pick up a card which has fallen on to the floor, and his nose begins to bleed. The bleeding is not very profuse, but it persists in spite of the cold bunch of keys which is applied to his neck; so the doctor is sent for. Now, a most searching examination of this man's condition by the ordinary methods will fail to reveal anything seriously disquieting. His heart is not enlarged; there are no murmurs; the sounds, indeed, are unusually clear and sharp, especially that at the aortic base; the beats are strong and regular. The urine is free from albumen and sugar, and its specific gravity is normal. Are we, then, to conclude that the bleeding is of no consequence, and that a pledget of wool soaked in adrenalin and applied to the bleeding point, combined with a night's rest, is all that is necessary to restore the patient to health? We must conclude nothing of the sort. The accentuation of the second sound at the aortic base ought at once to arouse our suspicions, and we should immediately proceed to estimate the blood-pressure. If no manometer is at hand, we can at least count the pulse in the upright and recumbent postures. We know that, normally, the rate lying down is slower by ten to twelve beats per minute

than the rate standing up; and we know further that if this difference is abolished, the arteries are unduly contracted. In such a case as I am supposing, that is exactly what we should find, and the manometer would certainly register from 180 to 200 mm. Hg, or even more.

Such a man is on the brink of a precipice. He has had what the French call an "epistaxis de la quarantaine" (an epistaxis of 40 years of age—they are more precocious over there!) and if we fail to read his symptoms aright we allow him to drift blindly, and even joyously, to his inevitable doom. For the next hæmorrhage, remember, may not be from his nose: it may be into his eye, to blind him; or into his internal capsule, to cripple, perchance to kill him. His immediate necessities can be met by rest, warmth, and vigorous mercurial purgation, and it would be right to administer nitrite of amyl, erythrol tetra-nitrate, or other vaso-dilators; but the best thing of all, if we have but the courage, is to bleed him. But whichever course we adopt, unless we take steps to guide him into the paths of physiological rectitude, his respite will be brief. He may not, indeed, suffer another hæmorrhage; but his arteries, which are now but functionally contracted, will, by reason of the constant strain upon them, soon become organically implicated and undergo sclerotic and other degenerative changes. To these changes various names are applied. In the larger vessels we call it atheroma, the mother of aneurysm and angina pectoris; in the smaller vessels we call it arterio-sclerosis, the results of which vary with the site of its selection, for of all the morbid processes this is surely the most capricious. An arterio-sclerosis of the kidney is called chronic interstitial nephritis; an arterio-sclerosis of the liver is dubbed cirrhosis; but, no matter by what name we call it, let us, above all things, remember that the essential condition is a degeneration of the arterioles, which degeneration has been provoked by the long-continued strain of a high blood-pressure which was originally functional and curable. Now, how are we to guide him so that he may avoid these horrors? How shall we so direct him that his blood-pressure, which now threatens him, shall be permanently reduced to reasonable proportions? The answer to such questions involves matters of detail into which it is impossible here to enter, but I may be permitted to record my emphatic and ever-deepening belief that purely vaso-dilative drugs are of little avail, and that the best, if not the only means, to this end are substantially comprised in King Henry's advice to Fal-staff: "Fast, forswear sack, and live cleanly."

In connection with the foregoing we must bear in mind that epistaxis is by no means the only symptomatic hæmorrhage which may overtake a person who is suffering from high blood-pressure. Such a person may,

on the contrary, bleed from anywhere. He may have hæmoptysis, hæmatemesis, hæmaturia, melæna, and other forms of hæmorrhage; the site is determined by the point of least resistance. What we have to remember is that a slight oozing, whether it be from the nose or elsewhere, which is superficially trivial, may reveal to the seeing eye a state of matters which, if allowed to go unremedied, is fraught with the gravest consequences.

Let us now look at epistaxis from the other point of view. You are asked to see a roseate, rather bulky woman of thirty, who has had a fairly profuse attack of bleeding from the nose which refuses to yield to ordinary household remedies. Your inquiries elicit that it came on suddenly after she had been scolding one of the children; that she certainly had been increasingly breathless of late, but had been otherwise in her usual health. The pulse is regular and presents no very suggestive characters. The case of the man whom we have just been considering, is fresh in your memory, and you proceed to take this patient's blood-pressure. The manometer registers 170 mm. Hg—a high reading. Are, then, the two cases identical in kind, or at any rate very similar? In both we have full-blooded people in whom dyspnœa, the dyspnœa of slight effort, has been the only noticeable symptom; in both, there may have been lethargy and irritability of temper; in both, the hæmorrhage has followed suddenly on some event of everyday occurrence; in both, the manometer shows a reading which is definitely supernormal. Are we, then, to treat the woman as we have treated the man; are we to give her nitrite of amyl and warn her of the possibility of a cerebral hæmorrhage; are we to assure her of her organic soundness, and urge her to take plenty of exercise? We must do none of these things until we have completed our examination. So far, we have not examined the heart, and until we have done so, we are not entitled to give any opinion upon any matter which relates, however remotely, to the circulation. In the case of the man, you will remember, we found this organ normal as to size: the sounds pure, with the second sound at the aortic base unduly accentuated. In the case of the woman, an examination of the cardiac area at once reveals the cause of her epistaxis, for she has the enlarged right ventricle, the rough presystolic murmur, and the accentuated second sound at the pulmonary base which speak so loudly of a constriction at the mitral opening. Now, a mitral stenosis indicates venous engorgement; the veins are unable to pass their blood onwards, and a small vessel in an unsupported situation, say in the mucosa of the nose, bursts, and a hæmorrhage, an epistaxis, ensues. That is simple enough, but how comes it that the manometer shows so high a reading in a disease the essence of which is that the veins should be engorged and the arteries comparatively depleted? Is it that

the instrument is useless, or is it but another example of the paradoxes with which Nature delights to puzzle those who attempt to read her secrets? It is the latter rather than the former, and yet it is very simple. Arterial blood is essential to all the cells in the body, but more especially is it essential to the medulla. It follows, therefore, that the arterial pressure must always be higher than the venous. If for any reason the pressure in the veins becomes raised, as in mitral stenosis it necessarily does, the pressure in the arteries must also become raised to a corresponding degree. If not, the medulla is deprived of arterial blood, and the patient dies at once. This is the phenomenon to which I referred when, at the outset, I said that high blood-pressure might be, and often was, a purely defensive measure on the part of the organism.

In the light of these considerations it is not very difficult to see wherein our two cases of epistaxis, that of the man and that of the woman, though bearing a strong superficial resemblance, differ fundamentally in their diagnosis, prognosis, and treatment. The prognosis in the case of the man is good; that in the case of the woman is at best sombre. The treatment in the one case is to reduce arterial tension and relieve the strain on the left ventricle. The treatment in the other case is to reduce venous tension and relieve the strain upon the right ventricle. I would not be so presumptuous as to discuss with you the measures proper to the management of an ordinary mitral stenosis, though in these progressive days our ideas even upon so well-worn a subject are undergoing considerable modification, but I should like to add a word to what I have already said about the man's case—the case of high arterial tension due to vaso-constrictor poisons circulating in the blood. Such cases are frequently, far too frequently, diagnosed as granular kidney. The mistake is pardonable, but it argues a lack of judgment. It is the more pardonable inasmuch as many of these functional cases have not only a perceptible measure of ventricular enlargement, but a degree of albuminuria which is quite unmistakable. Were I not afraid of wearying you, I could give the details of several cases which had been positively pronounced to be chronic interstitial nephritis by very competent and painstaking physicians, which time and the results of treatment proved to have been purely functional. The moral of this is two-fold. In the first place, high arterial tension, even when accompanied by albuminuria and slight cardiac enlargement, is by no means necessarily due to organic disease either in the kidneys or elsewhere; and in the second, that granular kidneys, hepatic cirrhosis, and general arterio-sclerosis are almost invariably preceded by, if indeed they are not directly due to, a state of functional high tension, which is eminently curable. The detection of this functional

stage is not always easy, but if we avail ourselves of instruments of precision in estimating blood-pressures, and are alive to the spectres which may lurk behind such apparently trivial matters as a slight epistaxis, we shall often be rewarded with the satisfactory sensation of having surely averted a grave disaster.

Hæmoptysis is an accident of very frequent occurrence. It is commonly assigned to two main causes, namely, phthisis and mitral stenosis. As it has recently become the fashion to treat this condition, however arising, by the administration of nitrite of amyl, it may not prove altogether unprofitable if we consider the matter for a few moments. Nitrite of amyl, as you know, is a powerful vaso-dilator, prompt and certain in its action, though transient in its effects. The consequence, therefore, of causing its inhalation is to induce a widespread dilatation of the systemic vessels, with a considerable and rapid fall of arterial pressure, but no necessary, or even probable, consequential effect on the vessels in the pulmonary system. Hæmoptysis may mean the rupture of a vessel in the pulmonary system proper, or it may mean the rupture of a vessel in the systemic system, for the lungs are supplied by the bronchial arteries which are branches of the thoracic aorta. Now, if the ruptured vessel be in the pulmonary system, then nitrite of amyl, though it may do no harm will certainly do no good. Where the hæmoptysis is due to mitral stenosis it is always a pulmonic vessel which is affected, so that in this condition, at any rate, nitrite of amyl is useless. The hæmoptysis of phthisis may mean the rupture either of a pulmonic or a systemic vessel—the excavating process treats them with brutal impartiality—so that the utility of the nitrite depends upon which is affected. When it is a pulmonary vessel, we know that the drug is useless; when it is a systemic, however, we may be certain that withdrawing the blood into other channels will arrest the hæmorrhage. The question which we have to ask ourselves, is whether in employing this drug in this condition we are running any risks. The answer is that a certain measure of risk must be undertaken in most therapeutic endeavours, more especially in emergencies, and that the best way of avoiding them is to realise their existence. In this case the risk certainly exists, and may be briefly stated as follows. In tuberculosis generally, and in advanced tuberculosis always, the mean arterial pressure is low—so low that the medulla finds some difficulty in maintaining its supplies. A hæmorrhage still further reduces this pressure. If now, with a view of checking the hæmorrhage, we bring about a widespread vaso-dilatation, the pressure is still further reduced, and is consequently in serious danger of being depressed below the level at which life can be sustained. I do not want to disparage the treatment of tuberculous

hæmoptysis by nitrite of amyl (I have seen it act like a charm), but I submit that we do well to realise its limitations, and to bear in mind the fact that its employment may conceivably precipitate the event which we are anxiously trying to avert.

There is, however, a form of hæmoptysis in which nitrite of amyl can do nothing but good. We have seen that a man who has high blood-pressure due to toxæmia may bleed from anywhere. The site of the hæmorrhage is merely a question of his *locus minoris resistentiæ*; and if that happens to be in a branch of one of his bronchial arteries instead of in his nose, he will have a hæmoptysis instead of an epistaxis, and, whether it be the former or the latter, the hæmorrhage is properly and effectually treated by nitrite of amyl. Hæmoptysis due to high arterial tension is an event of much more common occurrence than is generally supposed, and I am inclined to believe that of the many recorded cases of hæmorrhage from the lung which have been successfully treated by this means, some at least have been cases of high arterial tension mistakenly labelled phthisis. Here is an instance. A man of fifty was admitted into hospital with hæmoptysis, and the senior resident applied nitrite of amyl to his nostrils, whereupon the hæmorrhage ceased. I saw him the same afternoon; he did not look to me like a tuberculous subject, but for fear of re-inducing his hæmorrhage I refrained from examining his lungs, contenting myself with a sufficient examination of his præcordial area to be sure that he was not suffering from mitral stenosis. On the occasion of my next visit, I asked the resident if he had made out the cause of the hæmoptysis, and he replied that the patient was tuberculous and displayed definite physical signs at one apex. I made a very careful examination, but was unable to confirm this view. Such physical signs as were present—and they were not very marked—were quite compatible with the disturbance which a hæmorrhage necessarily causes to the portion of lung from which the blood has issued; and there was nothing in the history of the patient's condition to support the theory of tubercle. On examining his heart with more care than I had previously done I found that his second aortic sound was much increased, and on testing his blood-pressure I found it to be 200 mm. Hg, and that, in spite of the fact that he had been carefully treated for three days. This finding at once excluded phthisis, and showed plainly that the hæmoptysis was caused by a supernormal blood-pressure, which happily proved to be functional.

There is one other form of hæmorrhage which seems to demand more than a passing notice—namely, cerebral hæmorrhage. Apoplexy we know to be brought about in most instances by a high blood-pressure acting

upon arteries which are already degenerated. When the rupture takes place, the effused blood acts the part of a foreign body, and the intracranial pressure is at once raised. Now, this augmentation of the intracranial pressure is a very important fact to remember, for the augmentation renders it much more difficult for the arterial blood to penetrate inside the skull-cap, which it must do if the medulla is to be supplied and the patient kept alive. Let us now suppose that we have a patient who has had what is undoubtedly a cerebral hæmorrhage. You are expected to do something; you feel that you must do something. What are you to do? The first thing to do is to place the patient on his side, preferably the paralysed side, so that his breathing may not be obstructed by the relaxed and paralysed structures in his air-passages. You apply an ice-bag to the head; you see that the rectum is washed out; that the bladder is relieved; and you give such instructions as will ensure, as far as possible, the prevention of bed-sores. Now comes the important question: Ought you to bleed him? The object of venesection in such a case is to lower blood-pressure so that the hæmorrhage may not continue. That is a very desirable end to attain, because, if the hæmorrhage does continue, the lateral ventricles will soon fill with blood and the patient will die. But, important as this end undoubtedly is, we must on no account allow it to obscure our sense of perspective. Inside that cranial cavity there is not only a ruptured vessel, whose bleeding we wish to control, there is also a structure called medulla oblongata whose supply of arterial blood must at all hazards be maintained. If, then, we reduce blood-pressure to the point at which the reduction will be effective in checking the hæmorrhage, we are obviously in danger of reducing it to the point at which the medulla is starved. There may be a margin of safety; a point to which you may reduce the blood-pressure so as to moderate the hæmorrhage, without seriously diminishing the supplies to the medulla: but surely this is a razor's edge on which no practical physician will voluntarily choose to tread. The manometer has no information to give us on this crucial point. It tells us, no doubt, that the arterial pressure is very high, but we know that the arterial pressure was high before the accident, and that it is now higher still because it has to overcome an augmented intracranial pressure; but the instrument does not, and cannot, tell us whether we ought to bleed the patient at all, and, if so, what are the danger signals. For there are no danger signals. When the arterial pressure is reduced below the intracranial, death is instantaneous. That venesection may be resorted to in apoplexy not only with impunity, but with conspicuous benefit, is a fact which must be accepted on the testimony of very competent physicians; that it is at best a dangerous expedient, dangerous

to the life of the patient and extremely dangerous to the reputation of the practitioner, the above considerations are surely sufficient to show.

I do not mean to be understood that the manometer is a useless instrument where apoplexy is concerned. It is, on the contrary, of the very highest utility. In the first place it will help to guide us as to whether it be indeed a hæmorrhage, and not a thrombosis, which has produced the symptoms. Theoretically, the diagnosis between these two conditions is easy; practically, it presents considerable difficulties, to the solution of which the use of the manometer will often assist us; for whereas in hæmorrhage the blood-pressure is invariably high, in thrombosis it may be, though it is not necessarily, normal or even subnormal. The instrument will also help us in the very difficult task of forming a prognosis; for if the blood-pressure does not rise after the attack, especially if there is no progressive rise, then we can afford to be of good cheer. If, however, the blood-pressure shows an increase each time it is tested, then it means that the hæmorrhage is continuing in spite of the obstacle of the increased intra-cranial pressure, that the blood is ploughing its inexorable way into the lateral ventricles, and that the unequal combat will shortly be succeeded by a disastrous and perpetual peace.—*The Hospital*.

Senile Respiratory Disorders.

BY

SIR R. DOUGLAS POWELL, BT., K.C.V.O., M.D..

Abstract of a lecture delivered at the Medical Graduates' College and Polyclinic, November 1907.

It is quite unnecessary for me to give you any definition of old age; you have probably had several already in the series of lectures which I am here to-day to continue. The fall of a leaf and the death of a tree are natural, healthy developmental processes; and so is old age a healthy process, not a disease. We have to speak of those respiratory diseases which tend to interrupt this natural decline of old age. It would be impossible to describe them at any length. I can only glance at them, knowing perfectly well that your experience will fill in the details.

EMPHYSEMA.

Calcification of the cartilages of the body is a common event in old age. In those of the ribs it is especially seen, though Professor Humphry found several very old people whose cartilages remained perfectly soft. The calcareous degeneration may affect also the cartilages of the trachea and bronchi. Emphysema, too, is a frequent condition in old age,

though, again, it is not an essential one. Now, calcification of the cartilages and senile emphysema are very important, because they interfere with the mechanism's of respiration and circulation.

Up to past middle life there is an elastic traction between the ribs and the pleura, which acts as a constant aspiratory force towards the chest cavity, favouring the return of blood towards the heart. The cardiac action is forcible enough easily to overcome this aspiratory suction to propel the blood into the circulation: but the negative pressure within the chest is a very important factor in helping the venous return. When senile emphysema is fairly complete this force is lost: the ribs are no longer elastic and the lung itself is no longer contractile. In thin old people the jugular veins are frequently seen somewhat full, and becoming fuller in expiration; not very full, but more so than is normal in younger people. These changes are of little consequence in the quiescent life of the aged, because there is a lessened blood volume. Hence so long as they are not "hustled" to catch a train or to hurry up a hill, they do not suffer; but if they attempt such things they readily become distressed. Senile emphysema *per se* is not to be treated, but only to be remembered among the limitations of health.

QUIESCENT TUBERCULOSIS.

A localised fibrosis is often met with at one apex, generally the result of an old tubercular invasion. In a considerable number of old people who are examined *post mortem* there will be found on the surface of the lung a puckered fissure; this depression corresponds to destruction of the tissue beneath. It is important to bear in mind that these lesions are sometimes the cause of an altered breath sound, a conducted voice sound, and a little dry, creaking crepitation, the latter produced in the small emphysematous blebs of lung around the fibrosed tissue. Even in advanced life there sometimes occurs a sudden activity in an old focus of this sort, with hæmoptysis or other evidence of tuberculosis.

There is also a condition which used to be known as a "dilatation of a bronchus" at one apex, in the old, but I have not the slightest doubt that the signs which led to this diagnosis are really caused by old tuberculous nodules with central smooth wall excavation. In such cases sometimes there is a considerable amount of mucous expectoration, and you may not uncommonly find in it tubercle bacilli. Do not conclude that this is a proof of an active tuberculosis. I remember the case of a well-known member of Parliament—and a brilliant speaker—who for years had morning expectoration which contained tubercle bacilli. That man

lived to a ripe age, nearer 80 than 70, and he kept up his parliamentary activity to the end.

BASAL FIBROSIS.

Another condition is a kind of emphysema which it is very important to bear in mind. After an attack of pneumonia, bronchitis, or influenza, a permanent change is frequently, in elderly people, left behind at one base; some lack of resonance, or a higher pitch of percussion note, and a moderate quantity of fine, crepitant rale, somewhat variable but persistent will be found. Such patients have an habitual cough and bring up a certain amount of clear mucous expectoration, in some cases more or less pigmented. At times they get an added bronchitis or a catarrh of the upper air-passages, and the expectoration due to that is of a muco-purulent quality. They are short of breath and are liable to bronchitis. The point is that the local condition at the base does not clear up: it is one of chronic fibrosis, in the interstices of which is a greater or less degree of permanent œdema. The importance of recognising this state lies in the fact that it may be mistaken for a more active process. If the case has been watched all through, there need be no anxiety such as a doctor might feel were he examining it for the first time. There is a tendency to stagnation of the circulation at that base, with a danger of a more acute process setting in.

The treatment of this form of lung disablement is on general lines. You would not give expectorants, nor would you attempt to cause absorption by ordering potassium iodide. A little dilute acid with tincture of nux vomica is valuable to tone up the vessels, and may be given in some carminative and digestive mixture. The patient should be allowed exercise in the better part of the day, but a certain amount of rest must also be insisted on, and this is best obtained by one or two hours' complete quietude before getting ready for dinner. We must enjoin also light meals eaten slowly and leisurely with a small amount of wine. The functions of the liver must be carefully attended to by an occasional dose of blue pill or calomel followed by a morning saline. When the pulse is rapid or feeble small doses of digitalis are useful.

Climate is not unimportant, and the South Coast resorts often do good, such as St. Leonards, Falmouth, Weymouth, Bournemouth, Isle of Wight, and Torquay. Of foreign climates those of Egypt, Mentone, and Madeira are the best for these patients.

STRYCHNINE.

I wish here to sound a note of caution as to the administration of strychnine to old people, which, although of great value, is, I am quite

sure, sometimes overdone. Strychnine undoubtedly increases arterial tension, and excites old people to try more than they have strength for. Any course of this drug should, therefore, be not too prolonged, and small doses only should be ordered, such as two or three minims of the liquor strychninæ, or five to seven of the tincture of nux vomica.

LATENT INFLAMMATIONS.

Other troubles in aged people are latent pleurisy and latent pneumonia, which are not uncommon. These are not infrequently the "end-diseases"—the precursors of death. A latent pneumonia is one commencing in a stagnation of passive congestion at the base of the lung. When pleurisy is associated with it there may be pain, but pain in these latent cases is often referred to other regions, such as the abdomen, and may be confused with that of colic. Often there is no very marked acceleration of breathing or of the pulse to attract attention, and it is very easy indeed to overlook the real disease, and to treat the abdominal symptoms only.

The symptoms of onset of latent pneumonia are fatigue and exhaustion, with very little cough and very little expectoration. Occasionally there is a sudden collapse, with failure of the heart. Like young infants, old people are apt to die suddenly after exposure, and the lesions found are generally those of acute pneumonia or of acute bronchitis. Accident or shock is sometimes the exciting cause of this kind of pneumonia. There is always some increase of the pulse-rate, but as the normal pulse in old age is slow, the actual count may not seem a rapid one. Respiration is quickened comparatively more than is the pulse. The condition is generally fatal, but the best chance of recovery is afforded by the use of stimulants and complete rest and warmth. Warmed inhalations of oxygen are of great value, a point to which I shall again refer.

CHEYNE-STOKES RESPIRATION.

There is another condition—I am not sure that I can really call it a respiratory disease—which is not rare in old people, and that is the condition known as Cheyne-Stokes respiration. This was first described nearly a century ago (1818) by Cheyne, of Dublin, and his description was elaborated many years later by Stokes (1837). It is often induced by over-fatigue or over-excitement. The respiratory movements become more and more shallow to complete cessation lasting for 10 or 15, even for 40 seconds, followed by rapidly deepening inspiratory efforts. When these have reached their maximum the mouth is often open, with slight tugging downwards of the angles. There is hardly any nasal action; the breathing is almost always oral. The pulse rhythm may be a disorderly

one, but it is not altered during the respiratory pause. Lividity is often much less than one would expect. Towards the end of the pause there is sometimes twitching of the corners of the mouth and of the extremities. During sleep you may often see Cheyne-Stokes breathing in old folk, and when attacks occur in the day, consciousness is very generally somewhat diminished, though the patient need not be seriously ill.

This phenomenon is a common and grave symptom in many diseases. In uræmia, fatty degeneration of the heart, and cardio-vascular sclerosis, it is a frequent end-symptom. The mechanism is not fully made out, but it is supposed to be due to defective innervation of the pneumogastric centre in the bulb, which in consequence does not respond with sufficient quickness to the natural stimulus of venous blood. But the absence of lividity is against this hypothesis, and it is possible that the cause is an exhaustion of the centre, which requires a longer rest than it can get in the ordinary way of respiration. The process also recalls somewhat those cardiac cases in which several auricular contractions take place before the impulse can travel along the bundle of His and stimulate the ventricle to contraction.

The remedies indicated are strychnine and caffeine, which often meet with a very notable degree of success. I remember an old man of 75 or 77, the subject of cardiac degeneration, who had a most marked degree of Cheyne-Stokes respiration. He was very anxious to live to see his daughter's marriage, which was to take place in two months' time; by frequent oxygen inhalations and by strychnine and caffeine he actually lived for two years.

OXYGEN INHALATIONS.

Of the value of oxygen I should like to say a word, because it is very great. In senile pneumonia, in senile bronchitis, in senile Cheyne-Stokes breathing, and in all forms of senile heart disease, it is a most valuable stimulant, often far more so than alcohol. The rationale of this is that it leads to a supply of freshly-oxygenated blood to the cardiac muscle. No doubt the pneumogastric centres also benefit by the better-arterialised blood they receive. The usefulness of this remedy for the fatigue of old people is also marked: a brief inhalation of oxygen often does more than an alcoholic stimulant.

It is important to give the oxygen warmer than it issues from the cylinder. I always advise the intervention of an elastic bag of considerable size to take off the chill of expansion. In some cases it is desirable to warm the gas still more by a wash-bottle of hot water, which also

slightly moistens it. Another useful method is to pass the gas through a metal tube warmed by hot-water chamber.

BRONCHITIS.

Asthenic bronchitis is one of the most fatal diseases of old people. In it, of course, one of the elements of mortality is the feeble power of expansion due to rigid ribs and emphysema. The malady is very fatal also, as you know, at the beginning of life, and in both the young and old its course is often extremely rapid. I will relate to you the case of a widow, aged 76, who was dining with friends on December 27 in her usual good health and spirits. On the way home she was supposed to have been exposed to a chill. Next day she did not feel very well, and suddenly late at night she became severely ill and was found in a state of collapse. No morbid sounds could be heard in her lungs except a few rhonchi posteriorly. Free stimulation rallied her so much that her friends became hopeful. By the following mid-day the chest-signs were more marked, however, with short inspirations and prolonged wheezy expirations. Cough was now frequent and difficult, and expectoration profuse. The pulse and temperature were 90 and 100° F. respectively: there was slight delirium. Forty-eight hours after the onset fine bubbling râles were audible, most abundant at the posterior bases, where the air entry was very poor. There was the characteristic breathing of considerable emphysema; and a tracheal rattle, at first removable by cough, set in. Death closed the scene at about the 70th hour.

The characteristic features of this case are the profound shock, almost producing a fatal result as early as the twelfth hour (quite a number of people die in this stage); then the rally and the onset of slight febrile reaction and bronchitic signs, followed on the third day by the peculiar short inspirations, prolonged laboured expiration and tracheal râle which usher in the fatal result; recovery is indeed rare when once this stage has been reached. The common causes of bronchitis in old people are shock, chill, or the contagion of a common cold caught from some one else.

It is not necessary to say much about winter bronchitis. I have already explained the tendency to bronchitis in old people, and its association with chill. With regard to treatment, you must maintain the temperature of the room at 65° F., taking care also to have it well ventilated. I would utter a warning against the practice of wrapping the chests of old people in poultices, which add greatly to the fatigue of their respiratory movements. The occasional application of linseed or mustard poultices is of value, followed by pine or cotton-wool applications, especially during the night.

The danger of bronchitis is from the exhaustion and paralysis of the bronchial tubes. Do not oppress your patients with too much food, give small quantities at regular intervals so as not to overload the stomach. Ammonia, digitalis, strychnine have their place, but do not give the first and the last together in the same bottle. Senega and serpentaria are useful as the bronchitis wanes, but in the early acute stages ipecacuanha and potassium iodide are better.

In chronic winter cough with copious expectoration tar preparations are very good. Two especially I wish to mention. One is Eau de Goudron, which in Vichy or Ems water I have often found valuable in cases of bronchorrhœa. The other is liquor picis aromaticus (Bell), which contains about seven and a half grains of tar to the drachm. A good prescription which hides the nauseous taste of the tar, and is also stimulative and carminative, is:—

R. Liq. Picis Aromat. (Bell)	...	...	...	...	...	...	℥ii.
Glycerini	...	...	...	...	...	...	℥iv.
Ext. Liq. Glycyrrhizæ	..	...	...	...	...	...	℥iss.
Sp. Ammon. Aromat	...	...	...	...	...	...	℥iv. to ℥vj
Tr. Card. Co.	...	...	...	...	...	...	℥iv. to ℥vj
Aq. Chloroformi	...	...	...	...	...	...	ad ℥viiij.

Sig: A sixth part thrice a day.

I need not add that climatic treatment is of value.

With regard to acute pneumonia, the prognosis is much less grave than is that of acute bronchitis. Quite old people whose senses are somewhat blunted will often recover from this condition, whereas ten years previously they would have succumbed.—*The Hospital*.

Hæmoptysis due to Tuberculosis.

Early pulmonary bleeding in consumptives is apt to be ascribed to congestion of the bronchial mucosa, but it is probable, rather, that minute areas of necrosis already exist when these bleedings occur. That a high grade of congestion, however, is a factor, is shown by the influence of physical strain, and the heart's condition must also be considered. Patients with chronic valvulitis undoubtedly have more frequent hæmorrhages. Hæmorrhages from eroded vessels and miliary aneurisms are the more frequent causes of fatal results, and less frequent occurrence of pulmonary hæmorrhage in advanced cases of consumption is ascribable to endarteritis, causing gradual thickening and greater resistance of the vessel walls. Undoubtedly there is in many cases an existing hæmorrhagic tendency, and hereditary taint is often obvious. Aggravation of the cough and muscular exertion are frequent exciting causes.

The writer points out that the frequency of the symptom is very marked, and agrees with Osler that it is a feature in from 60 to 80 per cent. of all cases. His own experience does not show greater frequency in females than in males, and he believes that sexual differences are not as great in this regard as has been claimed. Season has a decided influence, as shown by his table. More cases occur in the spring and summer months than in the winter.

Hæmoptysis must be regarded as the result of existing tuberculosis, although other signs and symptoms are lacking. The attack does not seem to have any marked effect in reducing temperature in the majority of cases, and sometimes there may be a notable rise, which the writer is inclined to ascribe, sometimes at least, to exacerbations of tuberculous inflammation from the setting free of toxins, etc. The majority of bleedings occur after secondary infection with the streptococcus. There is a form of periodic hæmorrhage, though it is not common.

Prophylactic measures are unduly neglected. The importance of rest and avoidance of stimulants are hardly duly appreciated. A residence away from the sea-coast and a cold, dry, aseptic air are beneficial, as pointed out by Curtin. Among drugs the author relies mainly on opium, discontinuing it if abundant moist bubbling râles are heard over the uninvolved portion of the lung—a rare event, except in case of rupture of a miliary aneurism. In case there should be a ruptured aneurism with profuse hæmorrhage and danger of inundation of the uninvolved lung, cough should be encouraged rather than suppressed, and opium is contraindicated.—(J. M. ANDERS.—*Journal of the American Medical Association*.)

Hæmorrhage in Typhoid Fever.

Hæmorrhage is most likely to occur in typhoid fever during the ulcerative stage as a result of erosion of one or more blood vessels in the ulcerating lesions. If the loss of blood is sufficient to produce any systemic symptoms of collapse there will be immediate improvement in the toxic symptoms as a result of withdrawal of a certain amount of typho-toxin. There is a greater or less degree of collapse, temperature falls, heart's action increased in frequency and decreased in strength, blood pressure already low falls still lower, cold clammy skin, thirst and restlessness with involuntary relaxation of sphincters. The collapse is a protective measure, as lowered blood pressure offers a favourable condition for formation of clot and cessation of hæmorrhage. If collapse itself is sufficient to endanger life it must be met energetically, but with care not to

over-stimulate. External heat, bandages to extremities, raising foot of bed, and absolute mental and physical rest; bowel movements to be received in cotton or oakum. To insure rest of bowel hypodermic injection of morphine should be given freely, as it is more efficacious in controlling hæmorrhage than any other drug. Ice bag or Seiter coil is beneficial if collapse does not counter-indicate the use of cold. Astringents are harmful as they cannot reach the site of bleeding and are apt to cause vomiting. Theoretically, adrenalin would control bleeding, but it also increases arterial pressure and is liable to force out any clot that is forming. Calcium lactate, in doses of 5-15 grains t.i.d., has been shown by experiments to increase the coagulability of blood and is worthy of trial.—DR. TASKER HOWARD in *Merk's Archives*.

Pain as a Diagnostic Symptom.

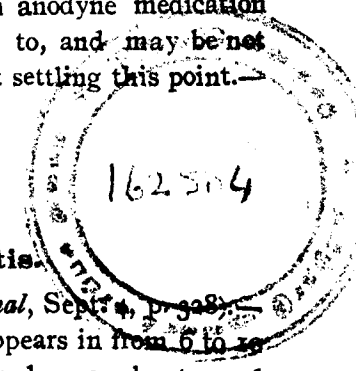
Many individuals who have complained of pain, upon the most cursory examination, reveal the absence *per se* of pain, because they have termed the sensation of tightness, fullness or heaviness, and especially general distress, for want of a better word, pain. Therefore, it behoves us first to understand our patient's meaning of pain, especially in the young and illiterate, since its proper or improper interpretation means much to the therapist as well as to the diagnostician. Many patients, because of this oversight, have been placed on an anodyne medication which probably would have been the last resorted to, and may be not even then, had care and discretion been used in first settling this point.—F. L. RATTERMANN in *The Lancet-Clinic*.

SURGERY.

Treatment of Chronic Urethritis.

JOHN PARDOE, M.B., F.R.C.S. (*Clinical Journal*, Sept. 4, p. 328).—Under ordinary simple treatment gonorrhœa disappears in from 6 to 10 weeks. A urethritis which lasts longer than 10 weeks may be termed chronic urethritis or gleet. The symptoms are often slight. Sometimes the only one is a slight stickiness or a mucous drop to be seen on squeezing the urethra on rising in the morning. This drop in many instances does not contain gonococci. Yet if the urethra be excited by the injection of a strong solution of silver nitrate gonococci may appear in the freer and more purulent discharge which results.

The first essential to successful treatment is a correct diagnosis. Any practitioner without special and elaborate apparatus can make a



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fairly accurate diagnosis of the extent of the urethritis—how much of the urethra is infected, and whether the various adnexa have escaped infection. The portion of urethra lying between the bladder above and the inferior layer of the triangular ligament below may conveniently be called the posterior urethra. That portion which extends from the inferior layer of the triangular ligament to the meatus may be called the anterior urethra. The reason for this clinical division of the urethra into 2 parts is that between the 2 layers of the triangular ligament the urethra is embraced by the compressor urethræ muscle which normally is in a state of tonic contraction. Thus the anterior urethra consists of the penile and bulbus portions, while the posterior urethra consists of the membranous and prostatic portions. Into the anterior urethra open the ducts of Cowper's glands; into the posterior urethra the ducts of the prostatic follicles and the common ejaculatory ducts. According as the infection is limited to the anterior urethra or has extended to the posterior urethra, and the urethral adnexa, so must the treatment vary. As the compressor urethræ completely shuts off the posterior from the anterior urethra any urethral injection given in the ordinary way fails to reach the posterior urethra. Yet until recently the only treatment in addition to giving drugs by the mouth has been anterior injections. You therefore first discover whether the infection is limited to the anterior urethra or has penetrated deeper.

Take a suppositious case of chronic gleet. A patient has had, off and on for some months, a slight discharge, usually only noticeable in the morning. First tell him to hold urine for as long as possible, preferably all night, and to come the first thing in the morning. Then wash out the anterior urethra with plain boiled water with a urethral irrigator. An ordinary irrigator holds a quart of fluid and should be suspended 4 or 5 ft. above the patient. To it should be attached a rubber tube 6 or 7 ft. long and to this an irrigator nozzle. The best type of nozzle is supplied with a shield, so that the fluid is kept from splashing the patient's or surgeon's clothes. The writer uses Wyndham Powell's irrigator. It is made of glass and has a detachable glass nozzle and can be boiled complete. For this test the patient can stand and drop the trousers below the knee; if nervous he should be allowed to lie down. Wash off any secretion which may be attached to the glans penis. Then gently insert the conical nozzle of the irrigator within the meatus, not using such pressure as to completely block the meatus. By compressing the irrigator tube between the thumb and forefinger one can graduate the strength of the flow to any desired extent. Gradually press the nozzle a little further in and you will feel with the fingers of the left hand

that the urethra is ballooned by the fluid. By withdrawing the nozzle a little you allow the fluid to rush out and by repeating this blockage and release of the meatus you will alternately fill and empty the anterior urethra. In most men the compressor urethræ is strong enough to prevent the fluid flowing beyond the bulb. Put all the washings so obtained into a long, conical, specimen glass. Now allow the patient to pass urine in two portions into two separate glasses. The anterior urethra having been washed clean, anything which comes in the urine must come from behind the compressor urethræ, that is to say, from the posterior urethra and bladder. In the first the specimens of urine will be bladder contents and the contents of the posterior urethra. In the second specimen will be only bladder contents, for the first micturition will have washed out the posterior urethra. This is known as the three-glass test, and although somewhat rough is, on the whole, satisfactory in giving information as to the extent of the urethral infection.

The next step is to palpate the urethra from end to end. The glands of Littre, if infected, can very often be felt as small shotty bodies. To examine the glands of Cowper one finger should be placed in the rectum and another finger upon the perineum. Between the two fingers an enlarged Cowper's gland can sometimes readily be felt. The prostate, the prostatic urethra, and the seminal vesicles should carefully be palpated. To examine the vesicles it is best to place the patient in the knee-elbow position. The vesicles do not, as is so often stated in text-books, run vertically upwards from the prostate, rather do they lie slightly obliquely upwards and outwards along the upper edge of the prostate. The healthy seminal vesicle is often not to be felt, but if chronically inflamed and distended it is readily felt.

Instrumental examination of the urethra gives most valuable information. The writer always uses the urethroscope for any new case of chronic urethritis, for by its aid local areas of infiltration, the earliest stage of stricture, and infections of the glands of Littre and of the lacunæ can be detected. For those who are not likely to see much of urethral diseases and therefore not to obtain much practice in urethroscopy the urethroscope is, perhaps, unnecessary. But for those who get plenty of opportunities for practising urethroscopy it is the most accurate means of localising diseases of the urethra. The earliest stages of stricture of the urethra may be observed within a comparatively short time of the commencement of urethral infection. There are numerous small cell infiltrations undetectable by the passage of ordinary bougies, but seen at once by the urethroscope

Suppose that on performing the three-glass test evidences of infection are found in the first and second glasses in the shape of threads and films and pieces of muco-pus, whereas the third glass containing the second portion of the urine remains clear. There is a posterior as well as an anterior infection. By the other methods of examination no evidences are found of enlargement of the seminal vesicles, prostate, Cowper's glands and the small urethral follicles. There is a superficial infection of the mucous membrane of the whole length of the urethra. There is a method of posterior irrigation known as Janet's by which remedies can gain access to the whole of the canal. It is wise to obviate spasm of the compressor urethra muscle by injecting a small quantity, say 20 or 30 m, of a 2 per cent. solution of cocaine, or 5 per cent. of eucaine, or 5 per cent. of novocain into the anterior urethra. By pressure with the fingers squeeze this solution down into the bulb, and then by pressing the urethra against the os pubes in a backward direction it will be found that the solution can be stroked through the compressor urethra into the posterior urethra. In this way the whole length of the urethra can be anæsthetised without introducing any instrument. After 4 or 5 minutes commence irrigation. The irrigator armed with the urethral nozzle should be suspended 4 or 5 feet above the recumbent patient. Allow the fluid to flow very gently at first until the whole anterior urethra is felt to balloon up under the fingers. Gradually increase the pressure and the compressor urethra will give way and allow the fluid to pass into the bladder, a distinct thrill being communicated to the fingers which are grasping the penis. The solution should be allowed to flow until the patient feels a desire to micturate. He should then stand up and empty the bladder. How often this irrigation should be done depends upon the strength of the solution. The best method, the writer thinks, is to give a daily irrigation for about 10 days or a fortnight, commencing with a weak solution and gradually increasing the strength. The writer uses a solution of permanganate of potassium, commencing with a strength of 1 to 4,000 and increasing by 1 to 500 every day until a maximum of 1 in 1,000 or 1 in 500 is reached. The best results are seen in patients who have been infected for 8 or 10 weeks or so. The mucous drop will disappear after 3 or 4 irrigations, and at the end of the course it will not return. When the end of the course is reached give the patient a rest of a week and then again try the three-glass test to ascertain if any gross infection remains. If there is not, wait, say, another fortnight, and once again apply the test. If the patient seems to be well no further treatment will probably be necessary. But in some cases in which there is no palpable evidence of infection outside the urethral mucous membrane, and yet the condition has

persisted for many months, this treatment will secure an apparent cure, and some weeks later the drop will reappear, possibly after some abuse of alcohol, an extra long day in the saddle, or some condition which has lowered the patient's general health. In such a case the use of some stronger solution than that of permanganate of potassium used not so frequently will give good results. The best solution is nitrate of silver in a strength of from 1 in 2,500 to 1 in 1,000. These irrigations should not be given more than once or twice a week and should be continuous for 4 or 5 weeks.

Gonorrhœa is seldom a pure infection with the gonococcus. Almost invariably other microbes are present. Not uncommonly after a course of irrigation with a potassium permanganate solution all gonococci disappear, and, indeed, all discharge, and then after 2 or 3 weeks without treatment a little discharge reappears in which the gonococcus cannot be found, but in which large numbers of the common organisms of suppuration may be detected. In such cases cure can often be attained by the use of 2 or 3 irrigations with a solution of perchloride of mercury. This salt is intensely irritating to the urethral and vesical mucous membrane and should not be used in any strength greater than 1 in 15,000. Most usually a strength of 1 in 25,000 will suffice.

Suppose a rather more complicated case. On examining the prostate it is found definitely enlarged and slightly tender. The presumption is that the prostatic follicles are infected in addition to the mucous membrane of the prostatic urethra. It is necessary to empty these prostatic follicles before the urethritis can be cured. Prostatic massage must be used. This is performed by centripetal pressure with the finger in the rectum, squeezing the lobes of the prostate between the finger and the posterior aspect of the pubes from their periphery inwards towards the urethra, first on one side and then on the other, thus expressing the contents of the prostatic follicles into the prostatic urethra. Prostatic massage is best performed with the patient in the knee-elbow position. In the same way the contents of the seminal vesicles can be expressed. The patient should micturate immediately after this massage and the urine should then be centrifuged and the centrifugate stained and examined microscopically. After the massage irrigation can be given in the ordinary way. If by palpation with the finger or examination with the urethroscope many of the urethral follicles are found to be infected, these must be treated. Sometimes they can be seen as distinct projections above the general level of the mucous membrane, grey, greyish-yellow, or deep red, according to the grade of infection. When they can so be seen

they can usually be felt from without as little knots along the course of the urethra. These infected glands mature and discharge their contents into the urethral canal, thus reinfecting a mucous membrane which has been gradually disinfected by irrigations. They must be ruptured and the contents expressed. This can be done by means of the urethroscope or, without the urethroscope, by the use of a large metal bougie against which they can be pressed with the finger outside the urethra.

A common cause for the continuance of gleet is a contracted meatus, and in all cases a meatotomy should be performed before instituting any fresh treatment. This requires only a little local anæsthesia, which can be obtained by soaking a small pledget of cotton wool in a solution containing 10 per cent. of eucaine and $\frac{1}{10}$ per cent. of adrenalin and pushing this into the meatus. With a slender, straight, probe-pointed bistoury the meatus should be slit directly downwards. A piece of lint coated with boric ointment should be placed between the lips of the cut and the patient should be directed to renew this application after each micturition until healing has taken place.

If the glands of Cowper are seriously affected they should be removed, for although with the urethroscope one can sometimes see the openings of their ducts in the floor of the bulbous urethra, it is well nigh impossible to treat them by way of the urethral canal. The operation for their removal is simple and is done through a transverse perineal incision midway between the anus and the scrotum.—*The Medical Review*.

Treatment of Stricture of the Urethra.

Twenty-five years of experience in the treatment of urethral stricture have led F. R. Watson to the following conclusions:—(1) Electrolysis and divulsion are methods of treatment which should both be abandoned. (2) Internal urethrotomy is the only method of treatment by which an important number of cures can be obtained. It is an operation involving but little danger. Its application should be restricted to strictures within the first five inches of the canal unless external perineal urethrotomy is done in combination with it. (3) For strictures of the deeper part of the canal gradual dilatation is the best form of treatment if constitutional disturbance does not rise in connection with its employment, and if the urethra for a reasonable length of time maintains the calibre to which it has been expanded by the instruments. (4) For the cases in which the strictures of the deep urethra recontract rapidly after dilatation, or those in which constitutional disturbances arise in the course of its employments, also for the resistant or impassable

strictures of the deep urethra, in all of which conditions gradual dilatation is useless, external perineal urethrotomy, or internal urethrotomy combined with the external incision in the perineum is the safest and most efficient method of treatment. (5) External perineal urethrotomy is the only operation that should be applied in cases of stricture accompanied by urinary extravasation. (6) Resection of the strictured part of the canal should be selected in cases of intractable, very dense strictures of the perineal part of the canal. Internal urethrotomy done under the conditions and in accordance with the rules the author has stated above will yield from 50 per cent. to 60 per cent. of radical cures, and at an operative risk of death of about 1.5 per cent.—*Boston Medical and Surgical Journal*.

OBSTETRICS AND GYNÆCOLOGY.

The Early Diagnosis of Tubal Pregnancy.

PHILANDER A. HARRIS (*Four. American Med. Assoc.*, Sept. 28, p. 1103).—In nearly every case of ectopic gestation a presumptive, if not a reasonable certain diagnosis, may be made before the onset of alarming symptoms. The condition may be divided into 2 stages—tragic and nontragic.

The Non-tragic Stage.—The following conclusions are based mainly on a study of more than 130 patients operated on, and a few who died without operation, the diagnosis being confirmed by necropsy. More than 90 per cent. of the 130 patients consulted a physician for symptoms referable to the pelvis before the tragic stage was reached. Many were attended for several weeks before tragic symptoms presented. Many consulted a physician only once before the occurrence of tragic symptoms. Many were assured, although they continued to show symptoms, and they relied for days or weeks on false hopes until the tragic symptoms occurred. A large proportion were told that ordinary abortion was threatened, was occurring, or had occurred. About 20 per cent. were curetted for the metrorrhagia, the cause not being suspected. Of the patients who consulted a physician, some were confined to the bed or couch for days or even weeks before tragic symptoms occurred. Except for brief intervals—an hour, or a few hours or so—in a large proportion of the cases the patients pursued their usual vocation during the non-tragic stage without material or prolonged interruptions. Only about 20 per cent. of the physicians consulted made a correct presumptive diagnosis.

Ninety-nine per cent. of all patients operated on in the non-tragic stage should promptly recover. It is easy to arrive at a presumptive

diagnosis of ectopic gestation. *When any female after puberty and before the menopause, who has menstruated regularly and painlessly, goes over the time at which menstruation is due, sees a discharge of blood differing in quality, colour, quantity, or continuance from the usual flow, and has pains, generally severe in one side of the pelvis or the other or possibly in the hypogastric region, ectopic gestation may be presumed.* The two points of greatest value in making a presumptive diagnosis are : (a) Atypical menstruation or Metrorrhagia ; (b) pains.

Menstruation.—The expression "Atypical menstruation" although a misnomer, is useful, for it directs attention to the appearance of blood generally out of rhythm with the normal menstrual cycle. The flow may be continuous or interrupted. The amount of blood lost may be much greater or much less than that of the usual menstrual flow. It may be darker or may be lighter or more brownish than the usual menstrual blood. The metrorrhagic blood of ectopic gestation often has a sort of slippery character, which the writer is unable to describe but which is almost diagnostic.

A careful history is of great importance. None of the points in the following schedule should be omitted : 1. If the present or last menstruation was out of type, write the date of its beginning, its continuity, its interruptions; note the quality, the quantity, and the character of bleeding. 2. Note the date, duration, amount and character of the menstruation preceding the atypical menstruation. 3. Note the date, duration, amount and character of the second last menstruation preceding the atypical menstruation. 4. Note the date, duration, amount and character of the third last menstruation preceding the atypical menstruation. 5. Note the date of each attack of colic, or series of attacks, and the date or dates of any recurrences.

If the patient has been accustomed to painful menstruation, analyze the character of the dysmenorrhœa and ask particularly if the pains which appeared in connection with the discharge this time were of the usual character. In tubal gestation, if the patient is intelligent, she will at once say that she never had pains like these. She will state wherein the pains and the flow differ from those of the previous and painful menstruations. Morning sickness and enlargement of the breasts, which are the ordinary symptoms of intra-uterine pregnancy, do not belong to the symptomatology of the extra-uterine pregnancy. If you are the second physician in the case, and the first one is reported to have said that the woman had a miscarriage and is still bleeding and has pains, be slow to accept such statement, unless a foetus has been seen. If it has been seen, obtain if possible a description of it.

Pain.—If the attacks of colic are very severe with steady pain between them, the abdominal walls may be rigid. The attacks in the beginning of tubal pregnancy are often mistaken for intestinal pains. They may not cause the patient to rest more than momentarily from her work. In other cases the pains are so severe that the doctor is sent for, whatever the time of day or night. Soreness of the abdomen may pass off in an hour or less after a severe attack, or be so prolonged as to prevent the patient from walking for a day or two or longer. Occasionally jars of the body in walking, or being much on the feet, cause so much pain that the patient remains in bed for a while. In such cases the attacks may return after shorter or longer intervals.

Pulse.—The pulse usually remains about normal. If, however, within a few hours a sufficient quantity of blood escapes into the abdomen the pulse will be found quickened and the patient weakened.

Temperature.—The temperature is not materially affected, except a considerable amount of blood has escaped into the peritoneal cavity. In that event there sometimes occurs a few days later some elevation in temperature; generally not more than a degree or so. The symptoms of the non-tragic stage may be present for days or weeks before any considerable amount of blood is found in the abdominal cavity. During all this time the temperature may not be materially altered.

The Tragic Stage.—There are severe attacks of colic, pallor, weak and rapid pulse, a fall of temperature one, two or three degrees below normal, rapid breathing, fainting, generally vomiting and restlessness, and sometimes a lethargic condition from which the patient may be aroused. The pulse may be anything from 120 to 180. It may not be possible to count it at the wrist, although its flickerings may be perceived until shortly before death.

Physical Signs.—No disease produces in the pelvis such a variety of signs. The uterus is always enlarged in a slight degree at least, but it seldom is much enlarged unless a considerable decidua is formed. The cervix generally is not altered, but there are some exceptions. It is sometimes much softened. Unless hæmatocoele has formed, the mobility of the uterus may not be particularly affected. If the uterus is lifted on the examining finger pain is almost always produced on the side of the pregnant tube.

In the non-tragic stage the tube is usually sufficiently large to be palpated on bi-manual palpation. The diagnosis may be made when the tube at its largest diameter does not exceed $\frac{1}{2}$ in. The tube may enlarge to a size of 2 in. or more.

It is not likely that the simple growth of the foetus within the tube causes pain. Whenever pain is felt, probably hæmorrhage has occurred within the tube. A pregnant tube is always tender when squeezed. The tube may be imbedded in blood clots, or so displaced or engulfed in hæmatocele, that its form and size are indistinguishable.

If a large hæmatocele has formed, the uterus may be carried far upward and almost out of the pelvis. When thus lifted it is generally pushed to the opposite side. The uterus may be so far pushed up that the cervix will with difficulty be reached per vaginam. The corpus and fundus uteri resting on the outer and anterior surface of a large hæmatocele may be distinctly palpated through the abdominal wall.

Hæmatocele.—A hæmatocele is sometimes very hard, but it is soft and boggy generally. When hæmatocele forms and materially displaces the uterus, frequent, difficult, or painful micturition may occur. The formation of hæmatocele generally marks the presence of alarming symptoms and, consequently, the tragic stage.

The treatment is immediate operation whatever the stage.—*The Medical Review.*

Transfusion of Blood in Puerperal Septicæmia.

MCKAY (W. T. S.). *Amer. Journ. Obstet.*, 1907. Vol. lvi., p. 448.—A patient, aged 25, was delivered of a seven months' child, and a few days afterwards the placenta was removed from the uterus by hand; the temperature rose, and the uterus was curetted. The discharge was slightly offensive on admission into hospital. McKay having found that antidiphtheritic serum seemed to act well when antistreptococcic serum failed, ordered her to have 2,000 units of these sera injected alternately every four hours. No signs of improvement occurred in 36 hours, so a gloved hand was introduced into the uterus. A specimen of the uterine discharge showed that it was a streptococcus infection. Large quantities of serum were injected, nearly 300,000 units of the two sera being used in 23 days. Rigors began on the fourth day after admission, and continued, almost daily, until the joint transfusion of blood and saline. After this transfusion, in which not more than a few ounces of blood were employed, the rigors disappeared for six days, then began again. As it seemed possible that the salt solution had brought about this result, thirty ounces of normal saline, to which an ounce of peroxide of hydrogen had been added, were introduced into a vein. Forty-eight hours later the patient had a very severe rigor. On the next day ten ounces of blood and twenty ounces of saline were introduced. After this she had no more rigors until she died twelve days later. During this time the pulse and

temperature improved, and the patient progressed so rapidly that she was allowed to sit up supported by a bed rest; while in this position she fainted, and died in a few minutes. No *post mortem* examination was made.

The method of transfusion used was quite simple. A cannula, connected by a rubber tube to a glass funnel, was inserted into the median cephalic vein of the patient, the apparatus being filled with salt solution; the blood was then run into the salt solution.—*The Journal of Obstetrics and Gynecology.*

Cysts of the Uterus.

MERCADE (SAI.VAI) *Revue de Gynecol. et de Chirurg. Abd.*, March-April, 1907.—This paper deals only with cysts appearing by themselves as pathological conditions of the uterus, not with such as occur as complications or degenerations of pre-existing tumours. The occurrence of such cysts is undoubted, though their nature is uncertain, and Mercade classifies them as: (1) mucous or follicular, (2) hydatid, (3) embryonic, (4) serous, and (5) blood cysts. (1) The mucous cysts are never solitary, but are always due to cystic degeneration of the mucous glands of the endometrium, which, apparently, never takes place during sexual life and since it is only found *post mortem*, is without any known clinical history. It is always benign. (2) The hydatid cysts may be either primary or secondary. (3) The embryonic cysts are found almost always at the edges of the cornua, lateral walls, or fundus of the uterus. Five theories of origin for these are mentioned and discussed, namely (a) inflammatory, (b) peritoneal, (c) remains of Wolffian body, (d) Mullerian, (e) Wolffian duct. (5) The blood cysts are stated to be either angiomatous or due to hæmorrhage into pre-existing cysts.—*Ibid.*

Early Erect Posture and Gymnastic Exercises after Labour or Laparotomy.

KRÖNIG (B.), Freiburg. *Deutsche m. Wchnschr.*, 1907. No. 30.—Krönig insists on the benefit of bodily exercise during pregnancy, and that the danger of such exercise causing abortion has been greatly exaggerated. For the last two years he has let his patients get up as soon as possible, after delivery, even only eight hours after labour alleviated by morphia and scopolamin, and the results, as regards general condition and morbidity, have been excellent and without any detriment to lactation or involution of the uterus. Moreover, there was no disposition

to descent of the uterus or vagina. The muscular system was strengthened by gymnastic exercises. He has had similar good results from early rising and gymnastics after uncomplicated laparotomies performed under morphia-scopolamin narcosis.—*The Journal of Obstetrics and Gynecology*.

OPHTHALMOLOGY.

Sympathetic Ophthalmitis.

BY

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By sympathetic ophthalmitis is meant a plastic inflammation of the uveal tract (choroid, ciliary body and iris) in one eye, and subsequent to a plastic uveitis in the other eye, this in turn being due to injury. There are thus three factors in the disease ; (1) A traumatic inflammation in one eye ; (2) A definite interval of time (not less than two weeks) ; (3) A plastic inflammation of a peculiarly insidious type of the uveal tract in the other eye. The absence of any one of these should make the diagnosis doubtful. The presence of all three, so long as the interval between the two inflammations is not too prolonged, can hardly bear any other interpretation than that of sympathetic ophthalmitis. The name is not a good one, as we are now convinced that the fifth nerve plays no part in the disease as was at first supposed. A better term would be migratory uveitis.

The Class of Injury which is likely to produce the Disease.—In the first place any penetrating wound of the eye in any position may produce it. It has also occurred after perforating corneal ulcers, destruction of cornea from sulphuric acid and sub-conjunctival rupture of the globe. The position of the wound is probably not so important as is generally supposed. An injury in the ciliary region, the so-called dangerous zone, is likely to produce sympathetic ophthalmitis, not so much because of the delicacy of the tissues injured as from the fact that portions of the ciliary body become entangled in the wound and thus prevent primary union and predispose to infection. A corneal wound with prolapsed iris or lens capsule is, I believe, equally dangerous. Probably more cases result from capsule becoming entangled in the wound after cataract extraction than from any other single cause.

Foreign bodies in the globe are a fertile source of sympathetic ophthalmitis. In the first place it is quite certain that foreign bodies can

remain in the eye for years without causing any sympathetic trouble. On the other hand, foreign bodies which cause much irritation are undoubtedly a common cause. The explanation seems to be that a foreign body on entering the eye often causes much injury to the iris, ciliary body, and particularly to the choroid, and when this foreign body consists of copper, iron, etc., it also sets up much chemical irritation. Under these circumstances, if the specific organism is present it has every chance of finding suitable material for its development.

May I say here that it is highly probable that the organism obtains entry to many eyes without setting up sympathetic ophthalmitis.

Of one fact we may be quite certain : should a virulent type of suppurative pan-ophthalmitis follow the injury there will be no danger of sympathetic ophthalmitis following. I am convinced that innumerable patients have been saved from sympathetic ophthalmitis by the rapid appearance of suppuration after the injury. Mild forms of suppuration, where the inflammation is limited to the anterior segment of the eye and the vitreous not affected, may be followed by sympathetic ophthalmitis. The virulence of the suppuration may be gauged by the amount of swelling of the lids. When this inflammatory oedema is very marked one may be quite certain that the whole eye is involved in the suppurative process, and that at least the danger of sympathetic ophthalmitis is removed. No doubt in these infective cases the specific organism of sympathetic ophthalmitis often obtains entrance at the same time as the pyogenic organism, but it appears to be unable to live in the presence of the toxins of the pyogenic organism if these are produced in sufficient quantities.

Diagnosis.—The diagnosis can be made only if the disease conforms to the following : (1) There must have been a penetrating wound of the other eye. Any wound even so slight as needling after cataract is sufficient. (2) An interval of time of at least two weeks since the injury must have elapsed. (3) The inflammation must be marked by (a) insidious onset ; (b) pain ; (c) exacerbations ; (d) delayed recovery (the mildest case will show inflammation for at least two months.)

In 1863 George Critchett at the Heidelberg Meeting said : " That which especially claims interest in these cases is the tediousness, the insidiousness, and the obstinacy of the inflammation ; the destructive influence which it exercises on vision, and the resistance it shows to all kinds of treatment."

This question of diagnosis is closely associated with the long interval that, according to published cases, may elapse between the injury and

the onset of the disease. One case has been recorded occurring fifty-five years after the original injury.

Cases have also been recorded in which no perforation of the other eye had occurred at all, viz., choroidal sarcoma, cysticercus, ossification of choroid, herpes ophthalmicus, tattooing the cornea, symblepharon and as a result of wearing an artificial eye. I do not believe that any of these conditions could possibly produce the disease. Surgeons are too apt to ascribe any plastic destructive iritis to a sympathetic cause if there has been any trouble at all in the other eye. Most people are now agreed that sympathetic ophthalmitis cannot occur without perforation of the other eye.

But to return to the question of time, the longer the interval after twelve months have elapsed the less likely is the case to be one of sympathetic ophthalmitis. I should view with very great suspicion any case diagnosed as sympathetic ophthalmitis in which the interval was as much as two years, but, on the other hand, it cannot be denied that genuine cases have occurred at much longer intervals.

There is the case published by Lawson in which a man aged 25 received a wound by a percussion cap in the left eye. A chronic form of suppuration resulted and the eye shrank after much suffering. It remained quiet for seven years, the other eye being perfect. Seven and a half years after the injury the stump became painful and inflamed, and soon afterwards the sight of the right eye became foggy without pain. During the next six months he had repeated relapses both in the stump and in the right eye till the vision sank to hand movements only, and well-marked plastic iritis was present. The left stump was inflamed, red and irritable, and a chip of metal was found in it after excision.

SYMPTOMS AND SIGNS.

An early and important sign of the onset of sympathetic ophthalmitis is the presence of hippus in the sympathising eye. This sign was first noted by Marcus Gunn. It consists of oscillatory movements of the pupil when exposed to light, it is sometimes present in a physiological condition in normal eyes, therefore it is important to be sure that the condition has arisen in the case by noting its absence before the disease is due.

The earliest symptom is usually accommodative asthenopia; commencing inflammation of the ciliary body would naturally cause pain on contraction of the ciliary muscle. About the same time the patient also complains of slight loss of acuity of vision. Lachrymation is usually an early and marked symptom and persists throughout the disease. Pain

sooner or later is almost certain to be present. On examining the eye at first a faint circum-corneal blush is seen and early in the disease spots of keratitis punctata can be seen by the magnifying glass in Descemet's membrane, iris details will be slightly obscured, and a few minute posterior synechiæ will early appear.

The peculiarity of the disease is the marked exacerbations of the inflammations at short intervals just as if doses of irritant poison were discharged into the eye. Each of these exacerbations causes more keratitis punctata, further iritic adhesions making it more difficult to keep the pupil open with atropine, and in the severe cases the pupil will contract in spite of all treatment and become blocked with lymph.

The pain is usually most severe and persistent, interfering with sleep and requiring morphia for its relief. One can usually judge of the severity of the case by the amount of pain suffered, those with little pain usually recover with useful vision.

During the inflammatory stage the disease is commonly accompanied by increased intraocular tension, no operation for the reduction of this must be attempted if it can possibly be avoided; an operation is almost certain to be disastrous. So long as the cornea does not lose its polish, and the field of vision remains full, no harm will result from the + tension.

The mildest form of sympathetic ophthalmitis is what is known as the serous type in contradistinction to the more common and more dangerous plastic type. The aqueous is slightly turbid, the anterior chamber deep, a few, if any, post-synechiæ form and the pupil responds readily to mydriatics. Pain is not very marked, seldom enough to keep the patient awake at night. The tension is commonly increased, but seldom to a dangerous extent. The prognosis in these mild cases is good so long as the inflammation does not take on the more pernicious plastic type.

There is no doubt that sympathetic ophthalmitis may follow an intraocular operation or injury, in which the eye operated on may have shown no signs of inflammation at all.

These cases are rare but well authenticated, the patients have recovered when the conditions have been of the serous type, but occasionally the virulent type is seen.

TREATMENT.

Prophylactic.—The obvious prophylactic treatment is to avoid exposing a patient to the danger of sympathetic ophthalmitis. Do not advise an intraocular operation on a patient unless there is something definite to be gained. Eye operations are in the nature of a gamble; it is impossible

to be absolutely aseptic in dealing with the conjunctival sac, both eyes are risked by the operation, and if *one* is a very good eye, the gain after a successful operation on the other is only slight. Let me explain by illustrations. I remember a coachman who came to the hospital with a mature cataract in one eye, and $\frac{1}{2}$ vision in the other; an operation was performed quite successfully, but the patient returned very shortly to say that he had double vision, and when driving was obliged to wear a shade over the eye. He complained that he was worse off than before the operation, and I agree with him. He did not know that he risked both eyes for this result.

I repeat, do not undertake an intraocular operation lightly, and weigh carefully the advantages and the risks.

Immediate.—The first question to decide is whether the eye is worth the attempt to save it. The more severe the injury, the more likely is it to produce sympathetic ophthalmitis. Therefore remove at once or within a day or two:—

(1) All injured eyes with no perception of light.

(2) All injured eyes with extensive injuries of the cornea involving the lens. The fact that the lens is injured is of importance because the swollen lens fibres will keep the corneal wound open and tend to iris and lens capsule becoming entangled, and should the eye recover it will not be of much value with the lens absent if the other is perfect.

(3) Remove all eyes with extensive injuries of the sclerotic with much loss of vitreous (detachment of the retina is almost certain to result).

(4) Injuries to the ciliary region involving the lens but when the lens has escaped injury, and there is not much loss of vitreous, so long as the presence of a foreign body is excluded the scleral wound may be closed by superficial sutures and an attempt made to save the eye.

(5) Where the presence of a foreign body in the globe is diagnosed and removal is impossible. Remember that when the globe has been perforated by a small object and the patient has no knowledge of having pulled anything out of the eye, the foreign body may be diagnosed correctly as being within the eye. Should the object be a piece of steel, the diagnosis can be confirmed by placing the patient in front of the Haab magnet, when pain will be felt on turning on the current; in many of these cases the foreign body can be withdrawn by means of the magnet and an attempt made to save the eye, otherwise the eye had better be removed.

In doubtful cases the eye may be safely left for a week or ten days, when the question of removal must be considered again.

If irido-cyclitis be present and the eye is not showing any improvement, with much irritation and lachrymation, it had better be excised. Should it be retained under these conditions the danger must be explained carefully to the patient or his friends. The most dangerous period, three weeks to three months, is now being entered, and if the eye is not quieting rapidly when the twenty-first day is reached, another urgent appeal to allow of its removal should be made. At this stage, excision will not necessarily prevent the onset of sympathetic ophthalmitis. Many cases have been recorded where the disease has appeared, although the uninjured eye was apparently perfectly normal when the operation was performed. The danger is not over till four weeks have passed since the operation, the explanation being that the infective organisms, if such there be, have already left the injured eye and entered the general circulation. However, these cases occurring after excision are undoubtedly of a mild type.

Parsons, in his book on "Diseases of the Eye," just published, makes the following statement: "It may be stated as an axiom that sympathetic ophthalmitis never occurs after the excision of an injured eye, unless it has already commenced at the time of operation."

With this statement I am quite unable to agree. I had one case of my own, a boy whose eye was injured by a stone; the injury extended through the outer one-third of the cornea, nearly into the ciliary region. The iris was prolapsed and the lens uninjured. An iridectomy was performed twelve hours after the injury. As the eye was still irritable at the end of two weeks, excision was advised, but refused by the boy's father. Consent was not given till two months had passed, when the eye still showed much irritation and lachrymation. At this time the uninjured eye was perfectly normal, so far as one could find by examination. Ten days after excision sympathetic ophthalmitis began and continued for three months. The case was a mild one, as is usual when sympathetic ophthalmitis follows excision.

Vision eighteen months later $\frac{1}{8}$ only, on account of corneal opacity due to old keratitis punctata.

In the Report of the Committee on Sympathetic Ophthalmitis in the *Ophthalmic Transactions* of 1886:—

Question 9.—What about Cases of undoubted sympathetic ophthalmitis occurring after excision of the exciting eye?

Thirty cases are recorded, eighteen of which recovered completely, three partially, nine being lost. The interval after the excision, before the first symptoms of sympathetic ophthalmitis appeared, was between

two and five days in eleven cases; one and two weeks in seven cases; about three weeks in six cases; and one to two months in six cases.

It is to be noted that in all of these cases the injured eye was not removed till some weeks after the injury.

Sympathetic Irritation.

It was thought at one time that it was safe to wait till some irritation appeared in the sound eye before removing the injured eye. This is now generally held to be bad teaching; sympathetic ophthalmitis is not necessarily preceded by a stage of irritation, and when such irritation is present in an eye which subsequently shows the typical inflammation it signifies merely the earliest symptoms of the disease, and excision of the injured eye at this stage will make no difference. Sympathetic irritation does occur quite apart from sympathetic ophthalmitis; the best example of this is the photophobia and lachrymation which occur in the other eye, with corneal ulcers or foreign bodies in the conjunctival sac. It may last for many weeks in cases of shrunken eyes containing bone, but it never leads to sympathetic ophthalmitis and the irritation is cured at once by removing the shrunken eye.

The question of excision of the injured eye after sympathetic ophthalmitis has commenced, depends entirely upon the amount of sight remaining in the injured eye.

Not much good can be expected from excision at this stage. If the eye is blind it had better be removed, but if the eye shows any promise of useful vision it must be retained. It is well known that the inflammation expends its fury on the sympathising eye, the injured eye, unless the injury in itself was extremely severe, usually retaining the better vision of the two.

In the Report of the Committee on Sympathetic Ophthalmitis, published in the *Ophthalmic Transactions* of 1886:—

Question 10.—When the exciting eye, retaining useful vision, is not excised, what is its final state?

Out of thirty-six cases in which the exciting eye, not being disorganised by the immediate result of the injury, was allowed to remain, the exciting eye recovered completely in nine, partially in seventeen, and was lost in ten.

Of the nine recoveries the sympathising eye was lost in five (these five cases were all of senile cataract extraction).

THE TREATMENT OF THE SYMPATHISING EYE.

During the active progress of the disease.—There is no drug which has much influence on the inflammation. Most surgeons are now agreed that

mercury by the mouth or by inunction had better be employed till mild salivation is brought about.

The patient must be confined to bed in a warm and darkened room.

Locally the eye must be kept carefully covered and fomented every few hours.

Atropine, unless the tension becomes very high, must be used frequently to keep the pupil open.

The pain may be relieved by the local application of Dionine (a preparation of morphia) in 5 per cent. solution; should this fail, morphia hypodermically may be necessary.

Subconjunctival injections of cyanide of mercury or of saline solution are much used by some surgeons; it is doubtful if they are of much value.

Should the intra-ocular tension become so high that its relief is called for, a posterior sclerotomy had better be performed; this is an easy operation and consists simply of puncturing the vitreous chamber with a narrow knife, making the wound in a radial direction about 10 mm. from the corneal margin, and taking care to keep the point of the knife away from the lens. An iridectomy usually does more harm than good. If it can possibly be avoided it is very much wiser not to operate on these eyes.

(2) *Later treatment.*—The acute stage of the disease usually lasts from three to six months; the eye then passes slowly through the subacute to the chronic stage. The final result in the *most severe cases* shows the following characteristics: the eye is soft and squared, it flushes up directly the lid is raised. The cornea is hazy from old deposits of keratitis punctata on Descemet's membrane. The anterior chamber is shallow or absent, the iris has lost its fine markings and looks muddy, the pupil is small and blocked with lymph. The vision is reduced to perception and doubtful projection of light, or the eye may be blind. This is the most severe form; all grades may be found till in the milder type an eye twelve months afterwards may show no signs whatever of the inflammation it has gone through.

Our difficulty lies in the operative treatment of the severe cases where the sight is reduced to perception of light only; these cases are the most hopeless that an ophthalmic surgeon has to undertake.

In the first place, no operation must be attempted till two years from the subsidence of the inflammation. That is to say, the eye must be given at least two years to recover.

In these severe cases, although we cannot see the lens, owing to the lymph blocking the pupil, it is practically certain that the lens is opaque,

and that the iris is completely glued to the lens capsule. Our difficulty, therefore, is to get rid of the lens and to make an opening in the blocked pupil. An iridectomy will be useless, the iris is so rotten that it can be removed only piecemeal, any opening made will fill up promptly with lymph and leave the condition as bad as ever. The right line of treatment is to needle the lens repeatedly through the pupil by means of two needles, with the hope that the lens will slowly absorb, and that eventually a small opening may remain permanently, through which the patient may regain a little sight.

In patients over 50 it may be feared that the swelling lens after needling may cause a return of the glaucomatous symptoms which accompanied the acute stage of the disease, and on this account various operations have been devised to get rid of the lens and iris sheet; they nearly always end in disaster, and I should prefer even in these older patients to needle the lens first and wait events.

Sympathetic Papillitis.

This unusual type of inflammation sometimes occurs without any of the typical appearances of sympathetic ophthalmitis. The condition is probably due to toxins escaping from the injured eye and reaching the fellow eye by means of the optic nerve. No doubt papillitis is often present with sympathetic ophthalmitis, but many cases have been recorded where the papillitis was seen distinctly, and subsided rapidly after removal of the injured eye.

Spalding in 1882 recorded a typical case. A woman, aged 65, was struck in the right eye by a cow's horn. Violent pain and blindness followed. Thirty-five days later the vision in the left eye began to decline. Spalding saw her eleven weeks after the injury. The vision had sunk to the counting of fingers at 4 inches. The media were clear and there was typical papillitis present. No other signs of inflammation could be found. The injured eye was enucleated and the vision in the sympathising eye in a few months' time had risen to $\frac{6}{9}$.

TEMPERAMENT AND CONSTITUTION.

It is highly probable that the specific organisms obtain entrance to many eyes without producing this disease. This can be explained only by the theory that the local and general resistance is sufficient to prevent the growth of the organisms. If this is admitted, it follows that one should take into account the general health of the patient and constitutional delicacy, if any, when deciding whether an attempt is to be made to save the injured eye.

My old chief, Bowater Vernon, firmly believed that delicate nervous patients, particularly if young, were more likely to suffer from sympathetic ophthalmitis than others.

FREQUENCY OF OCCURRENCE.

I do not wish you to think that sympathetic ophthalmitis is a common disease, as this is far from being the case.

There is no doubt that the disease is much less common now than formerly.

From 1850 to 1870 the dread of this disease was so great that eyes were removed for the most trivial injuries, yet in spite of this drastic treatment, a very great number of cases occurred. The explanation must lie with our better methods of cleanliness and asepsis, and also in the education of the public to seek early advice after injury.

Ohlemann found in 556 severe injuries that sympathetic ophthalmitis occurred only twice.

This, I believe, is much understating its frequency. Personally, I may say that a year seldom goes by without my seeing at least one case.—*The Polyclinic.*

OTOLOGY.

Peroxide of Hydrogen in Ear Diseases.

WILLIAM LAMB, M. D., Birmingham, England, "On Some Uses of Peroxide of Hydrogen in the Diseases of the Ear, Nose and Throat" (*Folia Therapeutica*, October, 1907).—In subacute and chronic suppuration of the middle ear peroxide of hydrogen acts as a very useful application. It acts as a disinfectant and deodorant and to some extent also as an astringent, and the active effervescence which occurs when it comes in contact with blood or pus exerts a mechanical action which helps in the breaking up of masses of septic material and the detaching of epidermal scales. It cleanses a septic ear better than any preparation with which the writer is acquainted and without any signs of irritation from the use of a 10-volume strength when a pure preparation was used. Pure cerumen is not much affected by peroxide of hydrogen, but plugs of epidermal and mixed secretions are generally rapidly softened by it and rendered easily removed by the syringe. In performing the mastoid operation the writer has found the peroxide of use in cleaning foul cavities, and, in addition to this, it has quite a noticeable effect in checking the profuse oozing from small vessels, which is sometimes so troublesome during such operations. In removing gauze packing from cavities in the

temporal bone—as after mastoid operations—it is a good plan to moisten the gauze, length by length, with peroxide of hydrogen before withdrawing it. The effervescence loosens the packing, and the dressing is accomplished with much less pain than is ordinarily the case. This is especially true of the first dressing after the radical operation, but it applies to all cases in which gauze packing is used.—*The Medical Review of Reviews.*

PAEDIATRICS.

On some Surgical Diseases of Infancy.

BY

ALFRED H. TUBBY, M.S., F.R.C.S.

Surgeon to Westminster Hospital.

MR. TUBBY said: Icterus neonatorum, or *jaundice*, in the new-born, is not an uncommon condition. Perhaps from 60 per cent. to 80 per cent. of children presented at birth some signs of jaundice, but in the majority it passed away without leaving any ill effects. When the jaundice deepened it was a sign of serious import. Unless it were serious it did not, in children, colour either the conjunctiva or the urine. Jaundice in infants often escaped notice, unless the skin were compressed and the tint of the depression noticed. In persistent jaundice the loss of weight was generally rapid, and the urea and uric acid in the urine were greatly increased. The slight cases were probably due to the breaking down of a certain amount of blood pigment. The more serious cases were generally associated with septicæmic changes, with syphilis, or with abnormalities of the bile ducts. Those were the main causes which operated in serious cases. It was also found associated with acute fatty degeneration, sometimes with Winckel's disease, and at others with sclerema neonatorum.

The jaundice in septicæmia was frequently a part of the general breaking up of the blood. In that due to syphilis, the underlying cause was syphilitic perihepatitis, with thickening also of Glisson's capsule. Many children were apparently healthy just after birth, with no rash or other evidence of syphilis, but after death they were found to have interstitial changes in the liver, kidneys, and spleen.

Abnormalities of the bile ducts might be either limited to the common duct or to the cystic duct, or to the hepatic duct. Sometimes the whole common duct was obliterated, nothing remaining but a fibrous cord; in other cases the cystic duct was either narrowed or entirely obliterated, or in others the hepatic duct might be so affected. Where the

common duct was obliterated the gall bladder would be sometimes seen to be full of bile, and the meconium was quite uncoloured.

The subjects of jaundice were much more liable to hæmorrhages than normal babies, and if by chance a vessel were wounded, the bleeding was likely to be troublesome. Also secondary hæmorrhages would probably occur in such infants after operations, and punctiform hæmorrhages from mucous membranes, or into serous cavities. Very few patients recovered from this form of jaundice.

With regard to *hæmorrhages* in the newly-born infant, they appeared not to be connected with delivery; secondly, they were spontaneous; thirdly, they were multiple in situation; they tended after a time to cease, and they were nearly always associated with some general infection. Hæmorrhage in the newly born might be described under (1) traumatic; (2) idiopathic; the first being generally connected with the cord, the second with the general constitutional condition. The hæmorrhages could best be dealt with according to their occurrence in (1) the gastro-intestinal tract; (2) from the umbilicus; (3) from the genitals.

(1) Hæmorrhage from the gastro-intestinal tract must not be confused with cases in which the child sucked a cracked nipple, swallowing some blood and subsequently vomiting it up. Children who had had asphyxia sometimes passed blood *per rectum*, and in the last lecture he stated that such subjects showed a tendency to hæmorrhage. A rare but important cause of gastro-intestinal bleeding was an ulcer; a simple ulcer of the duodenum sufficed to kill an infant. Intestinal bleeding also occurred in Winckel's disease, in acute fatty degeneration, and acute oedema.

Hæmorrhage from the genital tract was usually found in female infants, and Dr. Cullingworth had collected records of thirty-two such cases. Apparently in some cases it was due to pelvic congestion arising from the sudden obliteration of the umbilical arteries.

Umbilical hæmorrhages were very important, and they were divisible into traumatic and idiopathic. The two varieties were very different in respect to prognosis, the idiopathic patients nearly always dying. Traumatic hæmorrhages might be due either to the umbilical vessels being insufficiently ligatured, so that the ligature slipped off; or it might be too thin a ligature tied too tightly, so that it cut the vessel; or it might be due to cutting the cord too short, the gangrene occurring before the vessels were properly sealed. Or bleeding might ensue from the nurse knocking off the umbilical scab. But the matter could be easily dealt with, as the

hæmorrhage was vascular, not oozing. The vessel should be ligatured again, or under-run with a threaded needle.

Idiopathic hæmorrhage was met with in large institutions, such as Foundling Hospitals, and was often endemic. It was very difficult to stop, and was associated with septicæmia. It came on at about the fourth day of life, and in about 79 per cent. of the cases the infant died of exhaustion. Its exact cause was not known; but streptococci, staphylococci, and the *Bacillus pyocyaneus*, as well as Gaertner's bacillus, were found in association with it. The latter, when injected into guinea-pigs, was seen to produce persistent hæmorrhage.

Local treatment for the condition was not of much avail. It was worth while to try the effect of small doses of ergot or ergotine, or, failing that, $\frac{1}{4}$ to $\frac{1}{2}$ gr. of suprarenal extract. Or an attenuated solution of gelatine could be given, one to two teaspoonful every four hours, in order to assist coagulation. His own suggestion was to give heroic doses of calcium chloride, 20 to 30 grains, by the mouth every three or four hours.

Winckel's disease, or *epidemic hæmoglobinuria*, was another condition, and the changes it gave rise to were very considerable. It mostly ended fatally. The symptoms were a rapid cyanosis, a breaking up of blood pigment, which appeared in the urine, and the skin became jaundiced, giving the child the appearance of a mulatto. The disease came on at the fourth or fifth day, and usually did not last longer than two days. There seemed to be an intense desire to pass urine, and it was passed in small quantities and with obvious pain. *Post mortem*, the tubules of the kidneys were found to be stuffed with granules, which, under a high power, were found to be crystals of hæmoglobin. The urine in the bladder was loaded with blood pigment. The liver was enlarged, and the spleen red and hard. The condition occurred mostly in lying-in institutions.

Another condition was *fatty degeneration in the newly-born*, or Buhl's disease, and its effects were very far-reaching. It commenced at about the fifth day, and it might last a few days, or a week or two. The child was first cyanotic, then became feebler, with swelling of the subcutaneous tissue, so that it was sometimes mistaken for *œdema neonatorum*. It was distinguishable by the pitting on pressure which was seen in *œdema*. The essential affection was an acute fatty degeneration of the essential tissues of the liver and kidneys, the appearance of the liver resembling that in acute yellow atrophy. In the diagnosis it was important to remember the similarity of its symptoms to those of poisoning by arsenic and phosphorus.

œdema neonatorum occurred in children who had been the subjects of asphyxia neonatorum, and *post mortems* of ten cases showed a deficient expansion of the lungs. The child might possibly recover from it.

Nearly every new-born child was the subject of *erythema neonatorum*, and in some the condition was followed by a definite desquamative dermatitis. A simple sterile ointment generally sufficed for a cure.

Sclerema neonatorum often occurred at about the end of the first week, and was characterised by a stiffening of the subcutaneous tissue throughout the body, beginning generally at the feet, and extending, so that ultimately the child might be almost as stiff as if he were in a plaster case. Death occurred from mechanical causes, generally with the involvement of the mediastinum.—*The Polyclinic*.

Dentition in Hereditary Syphilis.

(*These de Paris*, 1907)—TRONCHON.—Delayed evolution, premature caries, peculiar vulnerability, vicious implantation, erosions, microdontism, and amorphism may be found in both dentitions in hereditary syphilis. Hutchinson's teeth, which alone can be regarded as pathognomonic, though more common in the second dentition, may also be found in the first. Thus out of seventeen cases presenting undoubted evidence of hereditary syphilis, Tronchon found Hutchinson's teeth present in the milk dentition of eleven.—*The British Journal of Children's Diseases*.

THE ANTISEPTIC.

FEBRUARY, 1908.

Medical Men In Public Life.

HAT is called 'public life' is a comparatively new phenomenon in India. It is a latter-day development. In ancient India, on occasions when the balance of advantages could not be determined, or when grave issues were raised, the Hindu rulers were wont to consult their subjects often in a body, but never by means of any well-established machinery for ascertaining the popular will. The democratic principle of which Mr. Morley spoke the other day was not unknown to the ancient Aryans who introduced and cultivated the arts of civilised life. But the conditions were entirely different. India was a self-contained continent which had no permanent connection with the world outside. The hurly-burly of modern civilisation was unknown. Indian humanity moved on in a placid stream without the currents and cross-currents and back-eddies which make navigation difficult. But the decadence of the ancient civilisation and the rise and progress of the West have established a new order of things. The enterprise and daring of the Western nations and the new discoveries have transformed life altogether. Free intercourse among all the races and nationalities has long become a stern reality, and no nation or community that lags behind in this, what we may call, world-competition can survive the ceaseless struggle of the present. It is this struggle among individuals and peoples and nations towards the light for the protection and advancement of their own interests in the manner and on the lines sanctioned by the pioneers of modern progress that manifests itself as public life and organised public activity. No intelligent man can afford to stand aloof as a passive on-looker without detriment to his own interests and to the interests of his country. What is called division of labour and specialisation with a view to add to one's usefulness and to the accumulation of experience is sound in principle and necessary in practice. But in no civilised country in the world, least of all in England, are specialists and experts confined to water-tight compartments without any direct touch with the life outside. Certain duties of enlightened citizenship are common to all, which must be

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undertaken and performed according as one's opportunities allow. And in no country in the world will the harvest be so plenty and yet the workers are so few as in India. Here, in this land of ours, no educated man, whatever his profession in life, can confine his activities to his own limited sphere without doing serious injustice to his less fortunate countrymen; and, what is more, men drawn from different walks of life and accustomed to look at life and its manifestations from different points of view, when they work in concert, render public life healthier, and public opinion more responsible, better informed, and less liable to err.

In India there is not a leisured class of educated men independent and capable enough to keep public spirit constantly alive. Agriculture, trade and similar professions have yet to draw the educated class in numbers large enough to make their services available for the common activities of life. A large percentage of the men turned out by the Indian Universities are absorbed by the public services. Most of our prominent public men have been members of the legal profession. But it is the nature of public life that several confluent streams should make it a great river flowing onward, in all its might and majesty, purifying and fertilising as it glideth. In the present state of the country the only learned profession, other than the legal, which can supply recruits, in increasing numbers, to the ranks of public workers is the medical profession. The demand for medical men will continue to increase, and the prospects are bright, provided the skill and enterprise are not lacking. It is a circumstance of happy augury that, as years roll on, the number of medical men taking to private practice is increasing, and their success will undoubtedly stimulate the study of medicine among the promising young men of the land. Within the next ten years we shall have scattered over the various parts and centres of India more than double or treble the number of medical men who now practise their profession most successfully on their own account, and we sincerely hope that, in addition to the discharge of their immediate duties as members of their profession, they will find other legitimate outlets for their disciplined vigour and energy in the numerous fields of public activity open to them in order that their countrymen may derive the greatest possible benefit from them. In England eminent men of science and eminent members of the medical profession sit in the House of Commons and in local councils, or take part in other forms of activity outside their profession, without any disadvantage to themselves or to those who go to them for relief from the ills that the flesh is heir to. What is true of England is true of other countries of Europe. In India too, of late, independent medical men have been playing

a useful and honourable part in the public life of their country. What we want to impress on our readers is that absorbing, noble and sacred as the duties of their own profession are, they should also be, if possible, equally keenly alive to the duties and responsibilities of healthy citizenship.

OUR BOOK SHELF.

The Prescriber's Pharmacopœia.

We have received a copy of *Messrs. Kemp & Co.'s Prescribers' Pharmacopœia*. It has now reached its sixth edition, within a very short time from its first appearance, which speaks of its popularity among the Medical Practitioners. It is a good synopsis of the more recent remedies both official and non-official. It presents the entire list of drugs alphabetically arranged and under each drug is given the definition, natural order, therapeutic indication, official and non-official preparations, doses, incompatibles and in cases of poisons, the antidotes. This hand-book deserves a wide circulation amongst Medical Practitioners and Medical Students.

Merck's 1907 Index.

(Third Edition).

It is an encyclopædia for the Chemists, Pharmacists and Physicians. It contains names and synonyms; source or origin; chemical nature and formulas; physical form, appearance and properties; melting and boiling points; solubilities, specific gravities and methods of testing; Physiological effects; Therapeutic uses; modes of administration and applications, ordinary and maximum doses, incompatibles, antidotes, special cautions in prescribing &c. of the chemicals and drugs used in chemistry and medicine. This is a very useful book for the busy Medical Practitioner and Chemist for urgent reference.



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Original Articles.

* THE ADMINISTRATION OF ANÆSTHETICS IN OPERATIONS ON THE UPPER AIR PASSAGES.

BY

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N the administration of anæsthetics there is no work which demands more resource than operations on the upper air passages. The anæsthetist must start fully prepared for any and every emergency that may arise; he must be quick to perceive the advent of any unpropitious symptoms, rapid in his judgment as to the most suitable course, and prompt in taking it. There are many points in the *technique* of this special branch of anæsthetics which become impressed upon one by experience, and the following remarks I have based on my experience of the past few years at a large special hospital and in private work.

The first thing is to decide what anæsthetic will be most suitable to give in the case. The four principal anæsthetics given in order of safety are Gas, Ethyl Chloride, Ether and Chloroform, and these or mixtures or sequences of these I shall alone consider. Nitrous Oxide Gas being the safest is the anæsthetic of choice in quite short operations, but, as given in the ordinary way, can only be relied upon to give an available anæsthesia lasting up to 45 secs. This will suffice for a skilful surgeon to do many short operations such as removal of turbinals, adenoids, tonsils,

* Specially contributed to *The Antiseptic*.

nasal polypi, and many others that may occur in practice. It has the advantage of producing hardly any after effects, and is particularly suitable for administration when the operation is to be performed in the upright position. At the same time it is always well, before deciding on its employment, to ask the surgeon how long an anæsthesia he is likely to require, and to be at least prepared to immediately continue with some other anæsthetic that can be administered through a tube should any unexpected hitch occur causing delay in the progress of the operation.

Methods have been devised for continuing the administration of Gas during the progress of the operation where more than 45 secs. is necessary. Patterson's apparatus for the administration of Gas through the nose answers admirably in many cases where the operation is done through the oral cavity and is likely to last two or three minutes. Before using this method, one should note whether the patient can breathe freely through the nose or not; if he is a mouth breather one cannot expect to get any good result, and in any case one must be prepared for only a light anæsthesia accompanied by some movements and phonation owing to the Gas being mixed with a certain amount of air passing in through the mouth.

I would point out that Gas may be given to quite young children provided that a breath of air is given with every few breaths of Nitrous Oxide; otherwise they quickly become cyanosed and rigid.

Ethyl Chloride is a very useful anæsthetic in short operations. It gives a longer available anæsthesia than Gas, and can generally be relied upon for as much as two minutes if required. The anæsthesia is also, as a rule, rather more profound, the patient keeping quieter. In children it is very safe, and gives admirable results. The disadvantages are that its mortality is somewhat higher than Gas, and that after effects, such as headache and vomiting, are far from infrequent. It may be safely given in the upright position. Where a somewhat longer available anæsthesia than two minutes is required, and for some reason Gas as administered by Patterson's method is not suitable, the administration of Ethyl Chloride vapour may be continued through a tube passed into the patient's mouth or nose. This method I have found particularly suitable in operations performed with the patient sitting up and lasting from two to ten minutes or a little longer; many intra-nasal operations would come under this category. In the sitting position, which is so frequently desired in this branch of surgery, this method has the advantage over Chloroform of being safer and yielding a quieter anæsthesia. One word of warning, —Ethyl Chloride should never be given in any case where there is the least fear of any narrowing of the trachea, such as may be caused by pressure

from without (abscess, growths, goitre, etc.) or obstruction within (inflammation, œdema, new growths, membrane, etc.). It is through neglect of this precaution that some of the deaths under Ethyl Chloride have arisen.

Ether I very rarely use in these cases. It takes some time to induce anæsthesia by this agent, and a good deal of congestion of the parts is caused with a free secretion of mucus, and, owing to the engorgement, hæmorrhage during the operation is apt to be somewhat embarrassing both to operator and anæsthetist. The necessity of administering it by means of a closed apparatus also renders it unavailable for continuous administration during the progress of the operation. Before the advent of Ethyl Chloride in operations which were unsuitable for Gas, my practice used to be to give Ether for about 5 or 6 minutes, getting the patient thoroughly anæsthetised, and then continue with Chloroform by means of Junker's apparatus, and for those who are still unfamiliar with Ethyl Chloride this offers a fair substitute. I now principally use Ether in the form of the C.E. mixture as a preliminary; the Junker in the more prolonged operations when the patient is recumbent.

Chloroform is certainly the anæsthetic for all operations deliberately performed with the patient recumbent. This method of operating is preferred by many surgeons, even for such simple procedures as removal of tonsils and adenoids. After the induction it should be administered by means of Junker's inhaler and a mouth or nose tube; this enables the surgeon to have a free field for operation; the anæsthetist can easily regulate the depth of narcosis, and there is less engorgement and secretion of mucus than with Ether or Ethyl Chloride. Chloroform should always be used where the operation is on the larynx or trachea.

Having decided on his course of procedure the anæsthetist should see that he has everything that he may possibly require conveniently to hand. He should be prepared to change the anæsthetic during the operation, if necessary; therefore the Junker's apparatus should be always ready charged. A tube of Ethyl Chloride and inhaler, Chloroform and C.E. drop bottles, flannel mask, etc., should be on his table. Props, gags, tongue forceps, and sponges on holders should be to hand. An emergency tracheotomy case, though seldom wanted, should always be put out.

The patient should now be examined, and special attention should be paid to his teeth, and loose ones noted so that they may be avoided in inserting the gag. Notice also whether he breathes through the nose or mouth; it will be no use later on passing the tube of a Junker into his nose if the passage is blocked. Again, it is a common practice to insert small pledgets of wool soaked in adrenalin into the nasal fossæ before

operations in this neighbourhood. Enquire into this, and, if present, at least suggest the advisability of their removal to the surgeon. I am sure there is some risk in leaving them, especially when anæsthesia is to be induced by Ethyl Chloride; this agent frequently sets up jaw spasm, and causes strong inspiratory efforts which might quite conceivably lead to these small plugs being aspirated into the wind pipe.

The patient should next be got into a position at any rate approximating to that in which he is required during the operation. The following are the usual ones adopted—the sitting, the dorsal with head on one side, or with head over end of table, the lateral, or the latero-prone. If the sitting position is adopted, the chair should be strong and with arms, and the patient should be strapped in such a manner that any pressure is on the groins and not on the abdomen. In the second dorsal position the head is, of course, not drawn over the end of the table till the patient is anæsthetised, and, failing other means, the anæsthetist must be prepared to support the head during the operation; this position is inconvenient to work in and not often adopted by specialists, but has the merit of being a very safe one, the blood all running out of the nose. To maintain a patient in the lateral position whilst under an anæsthetic the lower arm should be in front of the chest and the lower leg should be drawn a little behind the upper one and bent to a right angle at the knee. In the latero-prone position the face looks more downwards, the lower arm is behind the back, and the tendency is for the patient to roll right over on his face; to obviate this the lower leg is brought slightly forward being flexed at the hip or knee. It is nearly always advisable before inducing anæsthesia to prop the mouth open; this may be done with an ordinary prop or by a Wingates or Doyen's gag. The former I have improved by fixing a short metal tube to the lower surface of the upper blade and at right angles to it for the purpose of receiving the rubber tubing of a Junker or my Ethyl Chloride apparatus. It is a very safe and useful gag when the teeth are rather loose. Probyn Williams' modification of Doyen's gag is also fitted with a tube; it has two drawbacks: if the incisors are at all loose they are apt to be dislodged when forcibly opening the mouth; also it is not uncommon for the inner surface of the lower lip to get pinched between it and the teeth, and I have sometimes seen some severe bruising in consequence. Both these gags can be used with a closed inhaler.

In giving gas, if it is desired to get the longest possible available anæsthesia, the best plan is to induce slowly by allowing from two to four breaths of air at intervals and then finally give to cyanosis and factitation. In young people anæsthesia may, I think, be safely prolonged a few seconds by pressure on the great vessels of the neck during the operation.

The use of Patterson's apparatus in suitable cases I have already mentioned; a small mask fits over the nose, and through it Gas is supplied under pressure; the patient is instructed to inspire through the nose and expire through the mouth; during the induction a mask with an expiratory valve is held over the mouth to facilitate this. This habit of breathing is thus established and generally continues throughout the operation. This method is particularly useful in dental work.

In giving Ethyl Chloride one should aim at not giving more than is necessary for the case. Thus I make these rules:—If only half a minute's anæsthesia is required, it is unnecessary to abolish the corneal reflex; deep breathing with fixing of the eyeballs indicate a sufficient depth of narcosis. If one minute is required, cease the administration immediately the corneal reflex is lost. If two minutes, continue for a few breaths longer until stertor is well marked or the patient relaxed. For prolonging this anæsthesia I have devised the following apparatus:—Briefly, it consists of a metal chamber containing a few ounces of Ethyl Chloride and fitted with a stop-cork or metal tube to which is attached a length of rubber tubing to convey the vapour to the mouth. Anæsthesia having been induced in the ordinary way, the metal chamber is plunged into hot water which causes the Ethyl Chloride to boil, and the stop-cork being turned on, the vapour passes along the tube and is inhaled with, of course, some air. For a fuller description of this method I must refer the reader to my Guide to the Administration of Ethyl Chloride. I have kept patients under by this means on one occasion for as long as twenty five minutes, and almost invariably use it in the sitting position for operations lasting up to ten minutes. The anæsthesia after the first few minutes is generally very quiet, and, as it tends to become rather deeper than necessary, the chamber has occasionally to be removed from the hot water and the stop-cork turned off.

If you are going to keep up a Chloroform anæsthesia by means of Junker's apparatus, it is as well to bear in mind that it is not easy to keep big men under by this method; therefore see that they are well under chloroform before the operation commences and you start using it, otherwise there will probably soon be inconvenient movements necessitating a resort to the mask again. In using this method it is as well to time each stroke of the bellows with the commencement of inspiration; squeezing the bellows during expiration is only wasting the Chloroform. Should there, as frequently happens, be some difficulty in keeping the patient quiet, note the following points:—Is there a sufficiently high column of Chloroform in the container? Has it become chilled by evaporation? If so, warm by holding the bottle in the hand. Is there any kinking or obstruction in

the efferent tube causing a slow continuous flow of chloroformed air? Is the patient breathing by the mouth whilst you are conveying the vapour to his nose or *vice versa*? Attention to these points will often make all the difference.

Now in all these operations, no matter what anæsthetic is being given, the great thing is to regulate the depth of narcosis. Too light an anæsthesia causes the surgeon to be embarrassed by the patient's struggles; too deep anæsthesia means risk to the patient from loss of the cough reflex and entry of blood into the larynx. Between Scylla and Charybdis there is a very narrow channel which the anæsthetist must endeavour to find and keep. Watch the patient carefully. Holding of breath, swallowing, unnecessary coughing, brisk corneal reflex, movements and expiratory phonation, alone or combined, are the signs that anæsthesia is becoming too light. On the other hand, absence of cough, complete relaxation of the patient, absence of corneal reflex, and sluggish reaction of pupil to light, mean that we are getting too deep, and, unless the anæsthetic is withheld promptly, the next thing will be moist rales in the trachea and either faintness or blueness.

The throat will probably require some sponging out in most operations; the opportunity of doing this should be taken when the operator is selecting an instrument from the tray. The mouth should be widely opened, the tongue either drawn forward with the forceps or depressed with the finger, and the sponge holder passed rapidly into the pharynx, given a twist round, and withdrawn. Sponge holders should be straight, stiff, and have a firm hold of the sponge. Marine sponges are far and away the best; they should be of a suitable size for the patient's pharynx, wrung quite dry, and after use rinsed in water without removal from the holder, squeezed dry, and replaced on the table.

We may now consider some of the operations in detail. In tonsillotomy the anæsthetist will generally be expected to assist the operator by pressing in the tonsil from behind the angle of the jaw, and should have a hand free for this purpose. In operations on the nose and naso-pharynx of short duration, in the upright position, every opportunity should be taken of pushing the head forwards so that the blood will tend to escape from the nostrils. In operations on the nose, with the patient recumbent, it is very usual to plug the posterior nares to prevent blood finding its way into the pharynx. If this is not done it will be useful for the anæsthetist to pass a sponge on a holder into the mouth and with it press up the soft palate so shutting off the nasal cavity. Where the maxillary antrum is being perforated from the mouth, the patient usually lies with the affected

side of his face on the pillow, and a small sponge placed in the cheek behind the site of perforation will direct the escaping blood and matter forward. This sponge as it becomes soaked will require changing. The gag is, of course, inserted between the teeth on the other side and should not be opened more than necessary, or it will put the lips on the stretch and prevent the operator's access to the jaw. In big operations such as laryngectomy and excision of extensive malignant disease in the oral cavity, etc., a preliminary tracheotomy is frequently done, and a large tube inserted, packed round with sponge or gauze to prevent blood entering the trachea, and it is through this tube the anæsthetic must be administered. Some attach to it a further length of wide bore flexible tubing with a funnel at the end having lint stretched over it on which chloroform is dropped. Personally I prefer to dispense with this and administer the anæsthetic through the tube of a Junker's apparatus.

Among the special dangers of these operations on the upper air passages I have already alluded to the principal one, the passage into the trachea of blood, gas, or portions of tissue, and have mentioned the principal means of prevention. Should they fail and symptoms be too urgent for you to trust to the patient coughing up the peccant matter, inversion might be tried in a child and failing that, or in an adult, a low tracheotomy should be promptly performed. Remember, however, that cyanosis is not always due to this cause; patients with receding lower jaws frequently become blue if the gag is widely opened; another cause is retraction of the tongue; during the administration of Ethyl Chloride I have also seen on a few occasions complete spasm of the expiratory musculature.

Bruising of the tongue will occasionally follow prolonged traction with the forceps. In all cases where it appears necessary to keep it drawn forward for long, it is best to pass a suture through it and hold it therewith; the small puncture causes no trouble.

Loose teeth may be dislodged or decayed ones broken by the gag. Forewarned is forearmed and prevention easier than cure, but should a tooth unfortunately become dislodged it should be returned to its socket and wired to the adjacent teeth. Faintness will sometimes occur in the upright position; the patient should be immediately laid down and either the operation must be postponed or completed in the recumbent posture. I have mostly seen it come on at the close of the operation when the patient is about to come too.

Opisthotonus sometimes gives trouble both in Gas and Ethyl Chloride cases. In the former it generally occurs in children, and is due to

neglecting to give them a little air during the induction. Though causing delay and embarrassment to the operator it generally passes off in a few seconds, and the operation should, if possible, be continued in spite of it.

It is perhaps hardly necessary to add that in this class of case the sterilization of the anæsthetist's instruments is of the utmost importance.

The foregoing remarks are necessarily but a very brief survey of the subject. There are, doubtless, many omissions, and detail has been sacrificed to considerations of space. I conclude, however, in the hope that, brief and fragmentary as they are, they may prove of service to some whose work occasionally lies in the direction of my subject.

*AFFECTIONS OF THE CORNEA.

BY

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(Continued from Page 69, Vol. V, No. 2).

PART V.

5. The next rare form of keratitis we shall briefly notice is termed *dendritic keratitis* (Greek *Σévôpov*, a tree). It has been given this name because the ulceration of the cornea has the appearance of branches of a tree. It is a superficial and chronic form of ulceration with but little infiltration of its margins or floor, and one or more fine grooves in the cornea form the tree-like appearance. The ulceration spreads chiefly over the central part of the cornea by throwing out branches on either side, and at the termination of each of these branches there is a minute grey infiltration. FUCHS strongly holds the opinion that the dendritic form is simply one way in which *herpes febrilis* cornea terminates after the vesicles have broken, but a more recent view is that this peculiar form of ulceration is produced by a mould. The ulceration very rarely becomes septic. Cases that have been long neglected lose their primary characteristic appearance, the disease having run riot over the cornea and caused a ploughed up irregular appearance of the surface, although this is quite superficial. It is of a dull grey colour. The pain and irritation of these cases, especially at the commencement, sometimes is very severe, but at other times it may be altogether absent. The resulting opacity, after healing of the ulcerations is likely to be permanent, although not very marked. The only way we can properly examine these cases, so as not to overlook their true nature, is by means of the combined focal method of oblique illumination.

* Specially contributed to *The Antiseptic*.

The treatment consists in scraping with a sharp spoon and the subsequent application of 1 in 1000 sublimate. Another method is the application of pure carbolic, by means of a camel hair brush, care being taken to apply it so that it is confined strictly to the ulcer.

SWANZY recommends the application of absolute alcohol, by means of a little cotton wool rolled round the end of a pointed piece of match-wood; the surplus alcohol is removed by freely washing out the conjunctival sac with sterilized salt solution. This method causes a good deal of pain which needs to be relieved by hot fomentations, but it is a very effectual method.

Cocaine for the relief of pain.—This method is absolutely useless, and the applications of the alcohol should not be repeated unless necessary, and not in any case before five or six days have elapsed. Usually one application, or at the most two, is sufficient. If too many repetitions of the alcohol are made, a troublesome bullous or filamentary keratitis is produced. Another application, that gives good results, is the fine point of a stick of Copper Sulphate.

6. *Bullous Keratitis.*—It is exceedingly rare for bullæ to form on the cornea, and when they do, it is never a primary condition. It may be due to some primary disease of the deeper layers of the cornea but much more frequently it is the result of severe disease in the deeper parts of the eye, such as we have in absolute glaucoma, irido-cyclitis, &c. On the eye of a debilitated person it occasionally happens, although exceedingly rare, that corneal bullæ form, the eye being otherwise sound. Bullæ are sometimes caused by direct traumatism of the cornea, such as blows, &c.

During the formation of the bullæ there is considerable pain and photophobia, which disappears as soon as the bullæ rupture. One, or more than one, bulla forms at a time.

After the bulla has ruptured there is an appearance like filamentary keratitis, because their walls hang down in shreds. Where the bullæ have been are seen shallow depressions. After a few days or weeks another crop of bullæ appear and run the same course. The bullæ are never known to leave opacities as they are too superficial.

Treatment.—While there is the eruption, antiphlogistic measures,—atropin, dionin, hot compresses, bandages. If there is much pain, the sooner the bullæ are opened the better, and their walls snipped away with sharp scissors. Cocaine may be instilled, in the ordinary way, for this little operation. After all the epithelium, that had formed the bulla, has been removed, the remaining ulcer should be touched lightly with 5 to

10 % nitrate of silver, or absolute alcohol, a 40/0 solution of formalin, or the application of the solid stick of Copper Sulphate. The solutions may be applied by means of a little cotton wool wrapped round a probe, a pointed wooden or glass rod. The application should immediately be followed with warm saline solution, and then the bandage. There should be remedies for any fault in the general health. If, as is very commonly the case, some deep ocular process is the cause of the bullæ, such as glaucoma, any possible treatment for that should be practised. Occasionally an iridectomy may do good. In incurable cases enucleation is the only thing to be done.

7. *Keratitis Aspergillina*—(*Keratomycosis Aspergillina*).—LEBER was the first one to describe this rare disease. It consists of an invasion of the cornea with a fungus. This, when examined under the microscope, is seen to be the *Aspergillus Fumigatus*. There is an appearance of an ulcer, not unlike the *Ulcus Serpens*, almost, if not quite, in the centre of the cornea, very irregular and of a dirty yellowish-grey colour. One of the most characteristic things about this ulcer is its extreme dryness, so that the tears run over the ulcer without appearing to moisten its surface in the slightest degree. This dryness helps to distinguish it from the *Ulcus Serpens*; besides the colour is of a lighter shade and its surface is somewhat felt-like. The progress is slower, the irritation is less than the serpent ulcer, and perforation is rare. The ulcer spreads towards the periphery; the rest of the cornea becomes opaque, and there is generally a small hypopyon; there is chemosis or injection of the conjunctiva with mucus secretion and the eye-lids are, as a rule, somewhat swollen.

The two subjective symptoms are severe pain and photophobia.

Treatment.—Begin with atropin and hot fomentations, and then, when the inflammation is less intense, remove the membranous mass of necrosed tissue which forms the floor of the ulcer. Then the floor and edge of the ulcer should be cauterized and dressed with xeroform. Although there will be a cicatrix, a good and very rapid cure will result from this treatment.

Tubercular Keratitis and Tubercular Ulceration of the Eye.—There are five different forms under which tubercular disease of the cornea presents itself. Only one of these manifestations of tubercle in the cornea is primary, *i. e.*, having its origin in the cornea itself.

These forms of tubercle of the cornea may be enumerated as follows:—

1. Pale yellow nodules which appear at the corneal margin.
2. Diffuse interstitial keratitis.

3. Greyish sclerotising opacities.
4. Miliary Tubercular Nodules.
5. Pannus, ulcers and granulations.

That variety of tubercle, which shows itself by pale yellow nodules, is the primary tubercle of the cornea. The nodules extend deeply into the corneal tissue, but not to the very deepest layers. They slightly protrude over the surface, and there is some amount of ciliary injection.

With the exception of a passing reference to Tubercle as the cause of some cases of parenchymous keratitis, scarcely anything is said by FUCHS on the subject of Tubercle of the Cornea; a much better account is that of SWANZY, who gives the classification enumerated above, with a lucid description of these varieties of the disease. The nodules advance, according to SWANZY, to the centre of the cornea. FUCHS says that they extend to the ligamentum pectinatum, iris, and ciliary body. The nodules, as they extend, becoming more and more numerous over a limited area, come to be, of course, confluent. They may break down into ulceration, or, without breaking down, they may undergo absorption. In either case there will be an intense opacity, as the result, and this will occupy a very large portion of the corneal surface.

Primary tubercle of the cornea never results in ulceration that perforates, because the diseased process, although it goes somewhat into the Stroma, never goes so deeply as to reach those layers that are immediately adjacent to Descemet's membrane.

The opacity may clear up to a great extent.

Diffuse interstitial keratitis dependent on tubercle occurs in about one-third of all the cases.

The greyish sclerotising opacities grow into the corneal margin, at its deepest layers, from the ligamentum pectinatum. They spread by throwing forward tongues into the corneal tissue, and the cornea becomes permanently opaque wherever they have been. Miliary tubercular nodules behave in much the same way as the primary nodules, except that they never ulcerate. They form in connection with tubercular episcleritis.

Tubercular Pannus with ulcers and granulations of a tubercular nature is a condition of things that occurs in connection with tubercular disease of the conjunctiva. These are the tubercular ulcers that perforate. The tubercle bacillus is found in that which is scraped off the ulcers.

The treatment of tubercular disease of the Cornea is that of tubercular disease in general—the removal of the diseased tissue by cauterising the ulcers, etc., or by scraping with the subsequent insufflation of xeroform.

The internal treatment, by means of Tuberculin T. R. hypodermically, and Guaiacol and Creosote by the mouth.

As tubercular disease of the Cornea is sometimes ulcerative, it has been considered with the ulcerative varieties of corneal inflammation. We now go on to consider the non-ulcerative inflammations of the Cornea.

These are (1) Abscess; (2) Ring abscess; (3) Syphilitic diseases of the Cornea; (4) Keratitis Profunda; (5) Guttate, Nodular, and Reticulate Keratitis; (6) Tubercular (non-ulcerative) Keratitis; (7) Keratitis Punctata; (8) Sclerotising Opacity; (9) Riband-like Keratitis.

The condition which may be regarded as a sort of borderland between ulcerative and non-ulcerative inflammation is Corneal Abscess. This is simply because the abscesses in the more superficial layers break down into ulceration, while those in the deeper layers do not break down. *Ulcus Serpens* is the chief example of an ulcerative process beginning with abscess. An abscess differs from purulent infiltration in having definite destruction of the corneal tissue, whereas the mere infiltration of pus simply consists of the pus in the interspaces between the fibrillæ and the corneal corpuscles.

Signs and Symptoms of Corneal Abscess.—A yellowish circumscribed opacity appears, more intense at its margin than at its centre. Its position is at, or somewhere near, the centre of the cornea, and it is surrounded by a light grey zone. The shape is usually round, but if near the margin of the cornea, it may be crescentic. At first, immediately over the abscess the corneal surface may be slightly elevated, but this becomes flattened, due to a falling in of the layers immediately in front of the abscess, and the surface here has a peculiar breathed on appearance. The remainder of the cornea shares somewhat in this loss of brilliancy. There is more or less blepharospasm with severe pain. Sometimes the pain is only slight or absent altogether. Hypopyon and iritis, with conjunctival and ciliary injection, as a rule, constantly accompany the condition. The course of the abscess is generally that it continues to spread in one or other direction. The advancing direction of the abscess is shown by the yellowish infiltration being more intense at that spot. If superficial, the abscess will break down into the *Ulcus Serpens* condition, but the deeper abscesses spread more and more widely through the cornea until at last they end in becoming absorbed. This, however, always leaves considerable opacity.

The *Ulcus Serpens* process is much the more common process of the two.

Abscess of the Cornea is the result of infection with pyogenic organisms. The two ways in which these micro-organisms may reach it are by the blood in acute exanthematous diseases, especially Variola, in its convalescent stage; or through some traumatic loss of substance which may be only a slight abrasion of the epithelium. The lacrymal sac may be diseased, and infection with the micro-organisms take place as a consequence.

The treatment consists of the instillation of warm atropin drops, hot fomentations and a bandage. After about 24 hours, if no improvement, the actual cautery.

2. *Ring Abscess*—is a very rare affection. It consists of a complete ring of purulent infiltration at the margin of the cornea. It is almost always caused by perforating wounds; even operation wounds will cause it when careful asepsis has not been carried out. It is not only perforating wounds of the cornea itself that may produce Ring Abscess, but also those of the sclerotic spontaneous perforation of a corneal ulcer may cause it; also the infection of an old incarcerated iris prolapse, and it may be produced in metastatic ophthalmitis. The destructive process of such a case is extremely rapid. In a few days, or even hours, following the perforating injury, the abscess having formed, complete necrosis of the whole cornea takes place with Panophthalmitis. The only treatment of such cases is immediate enucleation or eviseration the moment the case comes under observation.

Not all cases, however, run this rapidly destructive course. In rare cases the process is less violent. Possibly the shape of the globe and even a slight amount of sight may remain after the destructive process is over.

Syphilitic Diseases of the Cornea.—Besides diffuse interstitial or parenchymatous keratitis, there are, at least, two other varieties of, or manifestations of, Syphilis, that occur in the cornea. One is known as Specific Punctiform Interstitial Keratitis, and the other is Gumma of the Cornea.

Diffuse Interstitial Keratitis.—The affection more commonly commences at some part of the margin of the cornea, as an infiltration of round cells, this being situated in the deeper layers. It spreads either by sending in processes towards the centre of the cornea, which soon become confluent, or by advancing from round the margin concentrically. There is another way, however, in which the disease may commence, and that is, at or near the centre instead of at the margin; in this case it always spreads concentrically, being seen as a number of small maculæ close together, with the corneal tissue becoming more and more cloudy. The

surface of the cornea immediately over these maculæ is dull and tarnished. Any change of the normal lustre and smoothness of the surface is said only to take place when the morbid process involves the more superficial layers of the corneal stroma, immediately adjacent to Bowmans membrane. If the disease is limited to the very deepest layers, and it nearly always commences there, the epithelium will be unaffected by the infiltration below it, and will retain its normal smoothness and brilliancy. In this way we may be able to judge of the depth of the infiltration. The next pathological change to take place is a proliferation of the fixed corneal corpuscles and the irritation causes vascular loops to be sent in from the peri-corneal ciliary vessels. It is the advent of these blood-vessels that saves the corneal tissue from further morbid change, for, indeed, retrogressive changes commence from the moment a blood-vessel reaches a diseased area, and the round cells become quickly absorbed; the turbidity clears, and the cornea assumes its normal aspect, except that for a time some of the vessels will remain, this being the last to go. This is as it would be expected. They can only be seen, after a time, by careful examination with the corneal loupe.

As may be readily understood from the above description, the density of the infiltration varies somewhat in different parts of the cornea, but it is not always greatest where the process has first commenced. If it has commenced at the centre of the cornea it will be densest there. The cornea is frequently so opaque as to render the iris quite invisible. A great number of cases do not seem to reach the vascular stage, and absorption takes place with little or no formation of new vessels, this absorption taking place by means of the corneal lymph channels. If no vessels have reached it, and absorption does not take place through these channels having been blocked, sclerosis of the involved area occurs.

Towards the later stages of the disease, the centre of the cornea is invariably the densest, and is the last to clear up. The so called "salmon patch" is an area of intense vascularity, which may gradually occupy the whole cornea, in some cases, in the course of the disease.

It is the cloudiness of the cornea between the numerous infiltrations that gives the ground glass appearance. The most common age for interstitial keratitis is the decade between the ages of five and fifteen. The disease occurs occasionally, however, in adults. I have myself at the present moment a man, aged 47, under treatment with undoubted interstitial keratitis, along with specific ear disease, both of which conditions are improving under anti-syphilitic treatment. Usually the adults are not nearly as old as this, and it is very rare for it to occur later in life than

thirty-five. The cases that occur in adults are nearly always slight, and quickly improve under rational treatment.

(To be continued.)

Cases and Comments.

A Case of Congenital Atresia Hymenalis.

BY

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A young and healthy looking girl named Hanawakka, of the Boza caste, aged about 14 years, an inhabitant of a village called Masanoor of Alur Taluk, was brought to this Hospital on the morning of the 28-1-'08, suffering from complete retention of urine attended with pain. The patient stated that up to the 25-1-'08 she was able to pass her urine freely, but on the 26-1-'08 she could at first void her urine with difficulty, passing only a small quantity at a time, until there was a complete inability to pass water supervened, which lasted for more than 24 hours before she was brought to the Hospital. The condition when seen by me was restlessness, anxious countenance, great suffering of discomfort and pain at the Hypogastric region and in the pelvic cavity. The bladder was much distended. Constipation with a sensation of fulness and heaviness in the region of the bladder, as if a big lump was lodged on the pelvic cavity. No inclination to eat or drink, for fear of the increase of the heaviness and distension. Temperature was normal. Her gait was peculiar, there being widening of the thighs and a forward stoop while walking a few yards, which was attended with discomfort.

The midwife being absent, I relieved her immediately of the retention by passing a catheter, of course with the consent of the patient and of her mother as well, taking care, at the same time, in not exposing her more than necessary, compatible with delicacy and modesty. A large quantity of high colored ammoniacal urine was drawn out, and this seemed to have relieved the patient of her sufferings. A dose of castor oil with peppermint water was next given to move her bowels, which had been constipated for some days together, and a warm hip bath was ordered, with milk diet.

The patient turned out again on the evening of the same day, somewhat late, complaining that she could not void her urine since

the catheterism done in the morning; though her bowels moved twice or thrice, her condition as regards passing of water, remained just the same as before her admission, and she sought me to relieve her again. Thinking this to be a peculiar case of spasmodic stricture of the urethra (for at that stage no other diagnosis could be made of it without thorough examination and correct previous history) I passed the catheter once more and relieved her distension. This time there was not so much urine drawn out, and a few doses of Tincture of Henbane and Sweet Spirits of Nitre with Camphor water were ordered, with warm hip baths and fomentation.

I was surprised to see the patient returning to the Hospital early on the following morning with no better results or report. Her condition was then just the same as before, and in fact a little worse. It struck me forcibly that there must be something wrong to account for the frequent obstruction to the flow of urine, which should be investigated before a thorough cure could be hoped or promised. I asked the patient and her mother to allow me to make a minute bimanual examination, and they readily consented. I placed her, then, in the usual lithotomy position, and, separating the thighs and also the labia, I found, that the hymen was entirely absent, the vaginal orifice being entirely occluded by a thick pinkish looking membrane which appeared to be a continuation of the adjacent structures, and had it not been for a round bulging which presented itself, the situation of the vaginal orifice, or for that matter the existence of the vaginal canal, could not be determined. The part that was bulging out resembled the round end of a large sausage and was fluctuating, and an impulse was communicated at each straining or coughing by the distended fluid within. A finger introduced into the rectum detected a fluctuating tumour pressing against the rectum. I then surveyed her general physique, to determine her age and the possibility of her having menstruated before, as the case was quite clear to me as being one of accumulated and retained menstrual fluid which, not finding an outlet owing to the congenital occlusion of the vaginal orifice, gradually distended the canal, and probably the uterus, from below upwards, pressed the neck of the bladder and the urethra and caused the obstruction to the flow of urine, and similarly pressed the rectum behind and caused the constipation which was noted above. Her breasts were well developed, pubis being covered with a small crop of fine short hairs. She has had the second molar up already.

The case was then diagnosed, as one of Congenital Atresia Hymenalis. I communicated my opinion to the mother and the patient, and,

with their consent, I decided to operate. The part having been washed and cleaned, was anaesthetised locally with cocaine and, under antiseptic precautions, a clean incision of an inch long was made at the middle of what might be the centre of the vaginal orifice in front of the fourchette and over the bulging point. About 3 pints of dark thick bloody fluid escaped with a rush, and with it the patient discharged a large quantity of the pent-up urine. The parts were washed with antiseptic lotion and dry antiseptic dressings were applied, and the patient was asked to remain in bed in the Hospital, to which she did not consent. The patient came again in the evening, walking with comparative ease and freedom. The mother stated that the cloth the girl was wearing in the morning was wet with the discharge, and that she was able to pass her urine freely with no pain or discomfort. The quantity of the fluid discharged must have been, therefore, very great. Normally the quantity of menstrual fluid discharged at each epoch by an healthy woman is from 3 to 7 fluid ounces, but in this case more than about 6 pints seem to have been discharged. I therefore venture to guess that the girl must have attained her maturity and menstruated for the first time 10 months or more before the symptoms of retention of urine were noticed, and that was not until the whole of the vaginal and the uterine cavities were quite filled up and distended by the accumulating fluid. I informed the mother of the girl to submit the patient for the rest of the operation but she and the patient expressed a great desire to get back to their village and therefore would not remain in the Hospital. It is now nearly a month since I heard anything about the patient. I think the girl is doing well.

Our Contemporaries.

MEDICINE.

Thyroid Insufficiency and Nocturnal Enuresis in Children and Adults.

By DR. HERTOEGHE.

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According to the author, the thyroid gland principle, in the sense of its cellular product, is of such importance for practically all the organs and functions of the organism that an excess as well as a deficiency will lead to disturbances of a serious character. The thyroid gland presides over the growth of the body and regulates the assimilation and decomposition of food-stuffs. An uninterrupted influence is exerted by it upon the muscles, the nerves, the brain, the skin, the epithelium of mucous membranes and of glands. Also the sexual organs are subordinate to it, in regard to their normal or pathological evolution and function.

Hemorrhages, abortions, malformations, the imperfect or normal development of the foetus; the entire period of lactation, and with it the thriving or failing of mother and child, are controlled by the thyroid gland principle. An excess during pregnancy may harm the mother to the advantage of the fetus. The growth of the child, puberty, adolescence, sexual maturity, etc., are all under the same influence. Nocturnal enuresis is usually due to a deficiency in the thyroid principle. In view of these various considerations, the importance of the thyroid principle as a therapeutic agent is constantly on the increase.—*The Post-Graduate*.

Asthma In Infants and Young Children.

BY

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[Abstract of a Lecture delivered at the Polyclinic Institute.]

Asthma is most often seen in the upper classes and among the Jews. It is less frequent in hot and dry climates than in low and damp ones. Asthmatic subjects may suffer from urticaria or eczema, which may be simultaneous or alternative, or may have no connection.

Cases may be of central or reflex origin. The central causes are vague and indefinite, but seem to depend on hyper-sensitiveness of the nerve centres. The reflex cases depend chiefly on a catarrhal condition of the mucous tract. This mucous membrane, whether it be in the nose or trachea or lower down the respiratory tract, is hyperæsthetic and liable to catarrh; a condition in which very slight causes will induce an attack of asthma. This explains why east winds, dust, hay-pollen, ipecacuanha, various odours of animals, etc., bring on attacks of paroxysmal sneezing or hay asthma. Gastric troubles and constipation are liable to set on an attack. HENOCHE has described a special gastric type under the name of "Asthma Dyspepticum."

Among other reflex causes may be mentioned nasal obstruction, poly-pi, adenoids and enlarged tonsils, and foreign bodies in the various orifices of the body. I have not come across any case that I could definitely ascribe to the local irritation of a foreign body. Enlarged bronchial glands are another reflex cause. They may, like the enlarged thymus, give rise to paroxysmal dyspnoea, but not to true asthma. Undue importance has been attached to enlarged glands as a cause. You will hardly ever see a case of tuberculous meningitis without finding the glands enlarged, yet the patients have not attacks of paroxysmal dyspnoea.

PATHOLOGY.

It is not a pure neurosis of the nerve centres, of the nature of an epilepsy of the respiratory centre. The chief theories held are that the paroxysm is due (1) to a spasm of the muscles of the smaller bronchi; (2) to a swelling of the mucous membrane of the smaller bronchi; or (3) to

a combination of these two factors. In favour of the first view one finds that drugs that relax spasm, e. g., inhalation of chloroform or amyl nitrite, injection of morphia subcutaneously, or the administration of nitrites by the mouth (supposed to act on unstriated muscle) will relieve asthma. These drugs also act on the heart as cardiac depressants. The swelling of the mucous membrane of the smaller bronchi has been ascribed to Angio-neurotic oedema, due to irritation of the terminals of the vagus and analogous to urticaria of the skin; to hyperæmia; or to vasodilatation. There is considerable evidence in favour of the view that such swelling does occur. The paroxysm is preceded by respiratory discomfort; exposure of the chest may bring it on; the inhalation of hot air may make the paroxysm worse; and it is often accompanied with general vasoconstriction elsewhere, as is shown by the pale face, lips and extremities. Many remedies that relieve a paroxysm of asthma are general vasodilators or local vaso-constrictors, or act as cardiac depressants.

On the whole, I think that one must take the view that the majority of these cases are due to swelling of the mucus membrane, vaso-dilator in character, which sets up a certain amount of spasmodic contraction of the bronchial tubes, and that there are also cases of pure spasm which may occur independently of such swelling. In some cases of asthma you will find swelling of the mucous membrane of the nose, and with the laryngoscope you may see that of the trachea also swollen.

SYMPTOMS.

As regards symptoms the cases must be divided into two classes: (a) those that are catarrhal in origin; (b) those that are spasmodic purely. The catarrhal cases are seen commonly in infancy; the pure spasmodic forms later in life and very rarely before the age of four years. The catarrhal cases occur in infants liable to catarrh; in the rachitic, the fat babies, and those with adenoids or enlarged tonsils predisposing to catarrhal conditions of the respiratory mucosa. In such cases the onset of the attack is preceded by definite signs of catarrh, slight in some instances. Indeed, the baby may be put to bed apparently perfectly well, more commonly breathing a little more rapidly than usual and wheezing a little. In the course of a few hours the child wakes up with great respiratory disturbance, anxious, restless, and breathing rapidly. The respiration rate varies considerably, sometimes being about 40 per minute, at other times as much as 90 per minute. The pulse is small, frequent, sometimes irregular. The chest indicates the typical condition of severe dyspnoea, similar to that of acute catarrhal bronchitis, with no special hyper-resonance, but sonorous rales, rhonchus, and sibilus, a few finer crepitations at the bases of both lungs behind, and marked recession of the lower ribs

and the soft parts above the clavicles. Usually the dyspnoea persists from two to six hours or more. Generally, next morning, the dyspnoea has subsided and the child is well except for a certain amount of catarrh of the respiratory passages, and in two or three days is absolutely well. If the attack is very severe it may last very much longer, or it may occur on successive nights at just about the same time; sometimes it is diurnal, periodic in character, coming on during sleep.

Another type of case is that of a child two or three years of age, who has had an attack of broncho-pneumonia or bronchitis. After a time it develops severe dyspnoea without any special rise of temperature or increase of the chest signs. As a general rule little attention is paid to the condition, and it is thought to be part of the illness for which the child is being treated; that the dyspnoea is due to paroxysmal asthma is not realised.

In a third type sonorous rales are present, but no special dyspnoea. These attacks come on in these bronchial children periodically, lasting for a few days at a time without any special symptoms. Thus catarrhal asthma is of three types; (1) Acute, ushered in with slight catarrh; (2) occurring during the course of catarrhal pneumonia or bronchitis; (3) no actual paroxysm, but recurrent attacks of sonorous sibilant rales in the chest. Two diseases specially predispose to the catarrhal conditions, antecedent to asthma, namely, measles and whooping cough.

The *spasmodic* type of asthma occurs in older children, and is closely allied both in character and duration to that of the adult type, though it is usually less severe and more prolonged. The onset may be sudden, and this is a point in favour of the view that the attacks are not purely spasmodic in origin to start with; it is uncommon to get an attack absolutely sudden in its onset. It is preceded, for a few hours perhaps, by a feeling of tightness or constriction across the chest, a sense of suffocation, air hunger, and a little inspiratory wheezing. Then the attack comes with great severity, with dyspnoea differing from the catarrhal type. It is inspiratory in character; inspiration is violent and shallow. At the end of each inspiration there is a pause with the object of keeping the tubes open as widely as possible, followed by a very prolonged expiration. The child gets pallid as the attack reaches its maximum, and gradually cyanosed, sits up in bed with clenched hands, head thrown back, mouth open, eyes congested and staring. These symptoms are maintained at this level for a varying period.

In children it is rare to meet with attacks of this severity, rarely going so far as cyanosis, usually lasting a longer period. Digestive troubles are

particularly apt to bring on attacks of this kind in children, and they are exaggerated by damp atmosphere and by east winds.

DIAGNOSIS.

One has to differentiate between the paroxysmal dyspnoea of asthma and that due to other causes—a difficult task with the catarrhal type occurring in infancy, for it is so apt to simulate acute capillary bronchitis. In acute bronchitis the dyspnoea varies in severity, whereas in asthma it maintains the same degree of intensity for some time. Then, too, you will find that a very important differential point is that the paroxysmal dyspnoea of catarrhal asthma is out of proportion to the physical signs of catarrh found in the chest. In catarrhal bronchitis sufficient physical signs are found to account for the dyspnoea present. If an asthmatic attack comes on during an attack of bronchitis the physical signs are not exaggerated in proportion to the increased dyspnoea. The essential difference between catarrhal and spasmodic asthma is that in catarrhal asthma there is a severe dyspnoea in which the frequency of the respiration may amount to as much as 90 per minute. In the spasmodic form the dyspnoea is infrequent. There is great difficulty in breathing, which is slow and laboured. It may be increased in frequency in proportion to the ordinary rate of breathing, but never as much as in the case of catarrhal asthma. In catarrhal asthma there is marked recession of the chest; in spasmodic, the recession is slight or absent. In catarrhal asthma fine rales and vesicular breathing are present; in spasmodic asthma large sonorous and sibilant rales are frequent, fine rales few, and a vesicular murmur absent.

In addition, in catarrhal asthma there is no marked alteration in resonance, whereas in spasmodic asthma the note is hyper-resonant, the chest assuming the position of complete inspiration. It is fully expanded, the inspiratory muscles strongly contracted, the expiratory muscles flaccid, and the diaphragm depressed. In catarrhal asthma the chest is sucked in on account of the resistance to the entry of air. In the diagnosis of these conditions you must attach importance to the relative amount of dyspnoea in proportion to the obstruction and physical signs, and to the family history, still more to the history of recurrent attacks. It is by no means easy to diagnose asthma in a first attack, but with history of recurrence the diagnosis is simple. In older children asthmatic dyspnoea has to be diagnosed from the hysterical form, in which the child is breathing with extreme rapidity but without any distress. Laryngeal obstruction and foreign bodies in the air passages are apt to lead to respiratory distress. In that type the difficulty is purely inspiratory in character. Dyspnoea may occur from the pressure of enlarged glands. Finally, paroxysmal dyspnoea may occur in certain cardiac conditions, usually on account of the fact

that the frequency of breathing is increased by exertion. Severe dyspnoea may come on after slight exertion in gastric dilatation from flatulence. It is especially apt to occur in myocarditis of rheumatism.

PROGNOSIS.

With regard to the prognosis of the disease, it is extremely rare for any one to die from an attack of asthma. An infant may die, however, from suffocation, cyanosis and prostration. Recurrence is very frequent. The prognosis depends upon several different factors. Recurrence is common in spasmodic asthma, which is much more likely than catarrhal asthma to continue throughout life. The prognosis as regards recurrence varies with the presence of an exciting cause. If there is no definite exciting cause prognosis is bad. Thus, in dealing with the catarrhal variety the prognosis would be that of the respiratory affection rather than that of the attack of asthma. If the catarrhal condition can be cured, there is a strong probability that the patient will outgrow the attacks of asthma. In recurrent attacks the prognosis depends upon the frequency of the attacks. In frequent attacks, with short intervals between them, the lung has not time to return to its normal condition, and the condition of the lung tends to become permanent. Patients are liable to get emphysema and dilatation of the right side of the heart. In the emphysematous lungs, due to recurrent attacks of catarrhal asthma, the prognosis is much worse than if the child were free from pulmonary mischief. On the whole the prognosis of asthma in children is by no means bad, although people are liable to take a gloomy view of it. It is most favourable, if an exciting cause is found, such as adenoids or enlarged tonsils, or some conditions of the nasal passages. A considerable amount of importance has been attached to the state of the nasal mucous membrane as a cause. It has been maintained that there is a small area on the triangular cartilage of the nose, which is affected by oedema, and that it is due to the irritation of this small area that the asthmatic attack is produced, and that asthma can be cured by cauterising this local patch. That is an unjustifiable claim. Many cases have been treated and some have got well. The cure of nasal obstruction does not always cure asthma, still, less hay-fever. Asthma has even been set up by the removal of a polypus from the nose.

TREATMENT.

The treatment is primarily preventive; secondly, the treatment of the attack; and, thirdly, the treatment of the disease between the attacks.

Preventive treatment consists in treating carefully children of asthmatic parentage. They must be reared under the best conditions of life

as regards hygiene, clothing, diet and mode of life. They must be treated so as to harden the respiratory mucous membrane and to make them as little liable to catarrhal affections as possible. Catarrhal asthma must be treated as a case of catarrh. Choose a dry and warm climate with a sandy soil. Suitable climatic localities in England are Bournemouth, Hastings, and the Ascot district. High altitudes are not suitable for emphysematous cases. Spasmodic cases improve in high altitudes. Warm clothing is essential. In order to prevent the attack at night administer antipyrin, phenacetin or bromide, at bed time. Spasmodic attacks occur at about three in the morning. In mild cases it is generally sufficient that the patient should sleep in a room with the windows open and with plenty of bedclothes. The body should be kept warm, but the air should be kept cool. Such treatment might be absolutely unsuitable for catarrhal attacks.

The diet should be nutritious, but it should not be given in large quantities at a time. Children should be taught to masticate the food thoroughly. Avoid meat extracts and an excessive quantity of meat or carbohydrates. Some cases have been treated with a purely anti-diabetic diet, but in my experience it does no good. Give an ordinary rational diet, taking care that it is not excessive in any one constituent. When the attack comes on various remedies are used, with various objects in view. Remedies are used with the object of causing general dilatation of the blood-vessels of the skin and so reducing the congestion of the respiratory mucosa. The hot bath or vapour bath, hot fomentations or turpentine stupes to the chest, inhalation of chloroform or amyl-nitrite, chloral by the mouth or rectum, alcohol, or even morphia subcutaneously, are useful. On the whole I do not recommend morphia for children, or even for adults, unless it is absolutely necessary. It is worth trying if you can produce local vaso-constriction in addition, by getting the patient to inhale cold air from ice in a jug, or the fumes of brown paper, leaves of stramonium, belladonna, or hyoscyamus, or some of the proprietary mixtures such as Himrod's powder. These are all vaso-constrictors. They are extremely irritating and absolutely unsuitable for all cases of catarrhal asthma, in which warm inhalations of creosote, turpentine or the vapor *pini sylvestris* are more valuable.

Drugs acting as cardiac depressants may be given to reduce the mucosal congestion. Most of them are drugs which produce nausea, faintness and collapse, and some of them, like lobelia, tartar emetic, and tobacco produce no effect until they do so. In the catarrhal type good may be done by an emetic at the onset of the attack. Use the syrup of

ipecacuanha, the wine, or the powder. The nasal mucous membrane may be treated with cocaine sprays, adrenalin inhalations, or cauterisation. Between the attacks recourse must be had to general principle of treatment, especially with a view of stopping catarrhal conditions. Reliance has to be placed on iodide of potassium, syrup of the iodide of iron, and cod liver oil.

Of other remedies arsenic is about the most useful tonic. Strychnine, nux vomica, and cinchona come next. The most important principle in the treatment of infantile asthma is the treatment of the catarrhal conditions and the local sources of irritation which are liable to bring on an attack rather than to postpone the treatment until it is necessary to relieve an actual spasm.—*The Hospital*.

Some Points in the Treatment of Chorea.

BY

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THE frequency with which chorea is met in childhood, and the distress caused to the patient by undeserved teasing or punishment, make the condition one which, on these grounds alone, it is of the greatest importance to treat, and to treat early.

The severity of chorea varies enormously: from slight hemi-chorea, in which the movements may affect one limb only, to a state in which the patient is never quiet, and continuous violent jerking movements of the whole body are constantly present, possibly with loss of the power of speech and difficulty in swallowing.

The line of treatment must, therefore, vary slightly in proportion to the severity of the attack, but in every case of chorea the following scheme of treatment will be found to yield satisfactory results:—

I.—DISCIPLINARY.

There can be little doubt that this forms by far the most important part of the treatment, and in carrying it out the following are some points which should be attended to:

1. The patient should be kept absolutely at rest in bed. Rest in bed will suffice in slight cases to effect a cure without any other treatment. The period over which this must extend varies directly with the severity of the attack; but a minimum of six weeks is in the majority of cases absolutely necessary, whilst two, three, or even four months will be

needed in any but the slightest cases. Rest must be absolute, the child being allowed to do nothing for itself. By this means not only are the movements checked, but also the heart, if previously sound, is guarded against damage; whilst if endocarditis be present the heart will, with rest, recover its tone, and the severity of any lesion will be greatly diminished. The importance of rest in bed as a means of cure is shown by the striking difference observed in comparing in- with out-patient cases, the latter often dragging on for months, and finally only being cured by admission as in-patients. The out-patient class entirely fail to appreciate the fact that rest in bed is really the all-important point, and imagine that if the child is kept in bed for a part of the day all that is required has been done.

2. The child should be kept in a room by itself. By this means perfect quiet is ensured. No other children should be allowed in the patient's room. The fewer people the child sees the better. In the event of no special room being available, the patient may be screened off.

3. No lessons, books, or toys should be allowed until all movements have ceased.

II.—THERAPEUTIC MEASURES.

A. *Treatment by Drugs*.—The fact cannot be sufficiently emphasised that drugs in the treatment of chorea are entirely secondary in importance to rest in bed. The following drugs have been found to give the best results: (1) arsenic, (2) chloretone, (3) zinc compounds, (4) bromides and chloral, (5) salicylates.

1. *Arsenic* may most conveniently be given as the liquor arsenicalis thrice daily, in doses of 3-5 minims, according to the age of the patient. The drug should always be given after food and well diluted. An extra minim may be added every three or four days, until fifteen-minim doses are being given. Signs of overdose, such as diarrhoea, vomiting, or pigmentation of the skin, must be carefully watched for; in the event of these symptoms arising the drug must be stopped, and saline purgatives administered. The majority of children stand arsenic well, and it is certainly the most generally useful drug in this condition.

2. *Chloretone*, or trichlor-tertiary-butyl-alcohol, has lately been given a trial in chorea. In mild cases it certainly seems to quiet the movements quickly, and to be unaccompanied by unpleasant effects; in some cases, however, an irritable papular eruption is met with, which soon disappears when the drug is stopped. In severe cases with violent movements it appears to be of less value; and the following case (which I am permitted to mention by the kindness of Dr. Francis Hawkins) was treated with

both chloretone and arsenic. No improvement was shown under treatment with chloretone; whilst as soon as the patient was brought under the influence of arsenic a steady progress was maintained.

B. H., aged 12, school-girl, admitted May 7, 1907, with violent and incessant choreic movements of the whole body, had to be constantly watched to prevent her falling out of bed. She was at first treated with chloretone grs. v. thrice daily.

May 10. Movements more violent, quite helpless. Chloretone grs. x. t. d. s.

May 15. No improvement, movements increasing in violence. Has lost the power of speech, unable to swallow.

May 21. Chloretone stopped. Liquor arsenicalis miiij. t.d.s. given.

May 28. Movements less violent. Still unable to talk. Slight improvement in swallowing. Arsenic increased to mvj. t.d.s.

June 5. Great improvement. Movements considerably less. Power of articulation returning. Power of swallowing much improved. Now taking mvij. t.d.s.

June 12-July 3.—During this period the arsenic was increased up to mxv. t.d.s.

At the end of this period all choreic movements had ceased, power of speech and swallowing were completely normal, and the child was, except for weakness, due to staying in bed, completely cured.

Whilst it is quite unfair to argue from a single case, the improvement shown under arsenic certainly demonstrated that arsenic will produce good results in a case which has resisted treatment with chloretone.

4. *Bromides and Chloral* will be found to be the most generally useful drugs for overcoming the sleeplessness which is so commonly seen in chorea. The dose must be adjusted to suit the patient's age, and should be given regularly for a few nights, until the condition has begun to quiet down, and regular sleep is obtained.

In the case mentioned above chloral grs. v. and potassium bromide grs. x were given each night for a fortnight, two hours before the child was settled for the night.

5. *Salicylates*.—These, *per se*, have little or no influence on the movements, and are by no means indicated, unless evidence of very recent rheumatic infection—*e.g.*, subcutaneous nodules—is obtainable. Aceto-salicylic acid has a great reputation amongst many careful clinicians, which is probably to some extent deserved.

Diet in Chorea.—The majority of cases, whilst at rest in bed, will do perfectly well on a plain milk diet; and there is no need, at any rate until the movements have become greatly diminished, to go beyond this form of food.

B. *Hydrotherapy* may be carried out by (1) douching, (2) shower baths, (3) wet packs, (4) Chapman's spinal icebag.

The question arises: When ought this part of the treatment to be started? Very violent and excessive movements will often be much relieved either by giving an ordinary wet pack for twenty to thirty minutes every evening, or by constant application of the spinal icebag. Apart from these cases, convalescence will often be hastened by spinal douching, commencing when the movements are first noticed to be lessening in violence. The douche should be given in the evening, the child's back being first sprayed with water at 80-90° F. for a period of five minutes; cold water is then turned on for a similar period, which may be gradually increased until each douche takes twenty minutes. Finally, when the child is said to be cured, it will be wise to warn the friends that relapses are by no means infrequent; and that on the slightest sign of relapse isolation and rest in bed must again be carried out.—*The Hospital*.

The Treatment of some Common Ailments.

By

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I REMEMBER well on first going into practice from hospital work how frequently I found that one came in contact with perplexing cases, scarcely touched on in text-books, and which never came within the purview of hospital practice at all. Since then my experience has confirmed this earlier impression, and I feel now that the general practitioner has a group of maladies quite to himself and upon which he is the best, and perhaps the only, authority. To illustrate this I might mention influenza as an instance. Any medical man in large practice sees more of this in a period of, say, five years than does the average consultant in a lifetime. The latter, no doubt, has often to deal with the sequelæ, but the ordinary malady he scarcely ever sees. I should like, then, to devote a little space to the question of treating some of the common maladies, not in any sense as a claim to original work, but simply as a collection of hints and suggestions gathered from my own and others' experience. I will take, first, the malady of a common cold in the head. This is a very frequent trouble among one's patients, and with some febrile disturbance and malaise is

sufficient to warrant advice from the family doctor. As in most other acute catarrhal affections, the patient gets at first a raw smarting feeling in the nasal passages, and with it some feeling of malaise, with headache and heaviness. Then in a day or so follows a mucous discharge becoming later purulent. I think in these cases there is no question that nasal irrigation in some form during the earliest stages will greatly cut short the attack, and this may quite effectively be done by sniffing up from a cup or saucer. Glyco-thymolene, 1 to 3, used frequently in a nasal irrigator is a drug with which I have had considerable success in the earlier stages of this trouble. Also the well-known remedy of boracic acid and sod. bicarbonate, to which I generally add 5 or 10 grains of pot. chlor to the ounce, is very efficacious. The bicarbonate of soda is useful in getting rid of the mucus and allowing the other drugs to act directly on the mucous membrane, disinfecting it. Then as regards the stuffiness and heaviness of the later stages of cold in the head, I generally prescribe menthol, grains twenty, dissolved in sp. camph. co., one drachm. It should be dropped on a handkerchief and inspired nasally. This prescription was suggested to me by an old family practitioner, and for the symptoms above described it certainly affords great relief.

As regards general treatment, I think this very troublesome malady is considerably aborted by putting the patient to bed for a day at least, and for the first night or so giving a dose of pulv. ipecac. co., gr. x. It is a common experience, I am sure, to find these cases when untreated linger on for weeks and lapse into a chronic condition.

Another common ailment which frequently occurs in general practice is that condition termed muscular rheumatism, although probably it has no relation to rheumatism proper at all. This will generally be noticed to come on after exposure to chill or damp following muscular "tiredness." (I emphasise the latter because when the muscles are fresh and vigorous, exposure to similar conditions will have no effect). It has always seemed to me that muscle is as liable as most other tissues to be subject to the effects of chill, resulting in congestion and tenderness with general febrile disturbance. As I have above suggested, the exposure is nearly always at the end of the day, and not at the beginning. This condition has been aptly called subacute muscular fibrositis. The best line of treatment is to put the patient to bed till all the muscular tenderness has disappeared—preferably, I think, between blankets—and an ordinary febrifuge prescription which aims at profuse perspiration is the most successful method of dealing with it. Possibly, though here I am on debatable ground, the muscular symptoms are due to retention of the waste products of muscle energy, and profuse diaphoresis may help to eliminate them. One drug

in this malady is, I think, peculiarly useful, and that is iodide of potassium, combined with sp. am. arom. Many of these cases manifest in particular, severe lumbago, which is often very intractable. I have found dry-cupping very useful in such instances, and as it is exceedingly simple to do it should always be tried. It may be repeated daily for three or four days. Another method from which I have often had successful results is to paint the lumbar area with iodine, and then apply over the same surface a hot iron with flannel interposed.

Another trouble of considerable interest to general practitioners is varicose ulcer of the leg, which is often very obstinate to treatment. Most frequently it is dressed with ointment spread on lint, and then bandaged. Now lint well smeared with ointment scarcely allows any outlet for the surface discharge. By spreading the ointment on gauze, over which is placed a pad of wool all the discharge is absorbed, the surface of the ulcer is kept clean, and the specific action of the ointment is allowed full play. To this treatment, combined with firm bandaging, I have seen many obstinate cases succumb, and ultimately clear up.

There is another group of conditions which, included under the name of sepsis, are unfortunately often met with in general practice. In septic, as in all other maladies, there are the two factors at work—namely, predisposing and exciting, or, perhaps, in simpler language, the constitutional and the local. For instance, a lowered vitality, weak-cell resistance, coupled with a pin prick frequently means a whitlow; or a scratch or abrasion, a diffuse and virulent cellulitis. We all know that active treatment must be adopted in such conditions, and, to sum it up briefly, this should be free incisions and large doses of liq. ferri perchlor. Now as regards local treatment, I may say that the general practitioner, either from timidity or from the fact that he is unable to let the patient have a general anæsthetic, scarcely ever incises boldly enough. Many times while in charge of the septic ward in my hospital days I had cases sent in of cellulitis in its various forms, with often perhaps one small, almost punctured incision; the result being that there is no outlet for the sero-purulent exude, which, causing extreme tension, brought about sloughing as well as toxic absorption from the pent-up pus.

In all these cases the patient should have a general anæsthetic, gas or a few whiffs of chloroform being usually quite sufficient, and the inflamed area freely incised and drained. Much hæmorrhage usually follows, which, however, is rarely troublesome. The part should then have frequent and prolonged immersion in a warm boracic bath.

As regards the general treatment, large doses of liq. ferri are almost specific. The great objection that this drug is not readily tolerated in the

stomach is easily overcome by free dilution. Thus: liq. ferri M xxx, glycerin M xxx, aq. chlorof. ad one ounce.—to be given every two or three hours in half a tumbler of water. I am quite aware that this form of iron is therapeutically supposed not to be absorbed, but clinical experience of a great number of septic cases only convinces me more fully that it has a very marked action on the course of the disease, bringing down the temperature, and effecting a decided improvement in the general condition.—*The Hospital.*

Diagnostic Signs in Nervous Diseases.

BY

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Convulsions in infants are always important; they indicate at once nervous instability in the child. They may be due to any source of irritation like simple gastro-intestinal disturbance, intestinal parasites, cutting the teeth, and the like. While the individual spasm may not be serious, in the outlook is always the danger of merging into actual epilepsy, and the most painstaking attention to determining and removing the cause is essential.

Similar seizures in youth or adult, whether mild or profound, are always indicative of either epilepsy, eclampsia, or due to gross cerebral lesions; more frequently the epileptic type, idiopathic or symptomatic. History ordinarily is important. Repeated attacks of partial blanks of consciousness with giddiness should receive early recognition, as petit mal, where vigorous treatment may save bursting into the major state. If the seizure, with tonic and clonic elements retains consciousness, showing the symptomatic Jacksonian type, the indication points strongly to gross brain lesion. The recurrence in any case of attacks of vertigo alone, which cannot be traced to gastro-intestinal or aural conditions, is, as a single symptom, always suspicious of brain tumor. Unremitting cephalalgia, projectile vomiting, inequality of pupils and monoplegias point equally in the same direction. Also at times hemiplegias, mental irritability, disturbances of memory, vision and hearing in varying combinations.

Various reflex reactions as a part of the sensori-motor mechanism possess signal importance; loss of patellar reflex usually indicates interference with the sensory side of the arc, becomes more significant when accompanied by reflex immobility of the pupil, and inequality in size

should be noted; these being present without incertitude or lancinating pains may be sufficient for early diagnosis of locomotor ataxia. Increase in patellar reflex or variability, often accompanied by the same condition of other tendon reflexes with or without irritability, is a common condition in simple functional nervous states of the neurasthenic order. In these also quite sharp attacks of vertigo are present, and not infrequently a moderate degree of ataxia purely of functional nature.

Marked exaggeration of the patellar or other tendon reflexes, especially if clonic reaction is present in any part, more often the ankle, the conclusion must be of organic inroad upon the motor tracts.

The great toe reflex, or Babinski's sign, is still of uncertain value, but may usually be attributed to involvement of the same regions.

The gait is usually important and requires analytic attention. The pure ataxic type points always to sensory lesion; the pure spastic form always to motor involvement; the mixed or spastic ataxic gait to trouble in both regions, and any case with apparent ataxic walk with materially increased knee-jerk can never be tabes, but is always a combined sclerosis. A spastic element should always be looked for in such a gait. The simple paretic and ordinary hemiplegic gaits are always easily recognizable.

The cutaneous reflexes are of variable value and subject to marked functional as well as organic modification; perhaps their greater importance is as an indication of the level of organic lesions in the cord.

Disturbances of cutaneous sensation obtained in widely different conditions, when not anatomical in distribution, are usually functional; when anatomical they indicate the level of sensory involvement centrally; the pure type of thermo-anesthesia usually being distinctive of hydro-myelia.

Loss of muscular substance is due to simple disuse or trophic interruption, or of the primary, so-called, muscular dystrophies. When trophic, showing partial or complete degenerative reaction, it always means either destruction of the motor ganglion cells of the cord or a break in the connection between them and the muscle, as in acute poliomyelitis or peripheral neuritis. Lost control of the bladder and rectum, more especially the former, while possibly functional, almost unfailingly indicates a gross cord lesion, most frequently myelitis.

Loss of symmetrical half of vision in both eyes means injury to the optic thalamus, but may occur with lesions anywhere between the chiasm and the occipital cortex.

Motor aphasia indicates gross lesion either of the cortical speech center, subcortical area, or the internal capsule at the knee. With double

vision, involvement of hearing or the other cranial nerves, the indication is involvement at the base of the brain, and more often of syphilitic origin.

Finally, tremors have a certain significance. The neurasthenic is of fine vibratory amplitude. In paralysis agitans it is oscillating, rhythmic, increased on excitement, but always present. Movement of simple chorea is irregular, varying from slight to the extreme, jerky in character, localized or general. Choreiform movements occurring with gross lesions are usually confined to the areas corresponding to the central focus. Various tics and spasms occupy an individual group, and the intention tremor of disseminating sclerosis is recognized as being only that of finely adapted intended movement.—*The Medical Brief*.

Chloride Deprivation in Treatment of Renal Anasarca.

PROF. STRAUSS says that chloride deprivation is to be used, not as some have urged for the treatment of diseases of the kidney in general, but for the prevention and treatment of certain forms of renal dropsy; and further, that not every case of renal anasarca is necessarily an object for the systematic deprivation of chloride. It is in cases especially of acute and chronic parenchymatous nephritis that the question of chloride deprivation occurs, whilst the treatment of dropsy in contracted granular kidney falls into the same category as that of cardiac dropsy. In anasarca, due either to acute or chronic parenchymatous nephritis, this treatment is indicated. Cases of the latter in which elimination in general, and more especially that for sodium chloride, deficient, can be recognised by two symptoms; (1) with an average intake in the food, the daily output, both per cent. and in total quantity in the urine, is extremely small; and (2) running parallel with this deficient excretion, a progressive increase in body-weight, indicating a retention of sodium chloride in the tissues, and with it of water. Without visible anasarca a considerable quantity of water can thus be held back in the tissues. In this condition, then, and in anasarca itself, deprivation of chloride should be a part of the treatment, and is obtained by (1) regulating the intake in the food, and (2) increasing its elimination from the body by giving preparations of caffeine, of which diuretin is the most effective, increasing both the total quantity of urine and also the percentage of chloride.

So also Minkowski, writing on the treatment of dropsy by regulating the intake of water and salt, puts the reduction of sodium chloride intake in the first line in the treatment of renal dropsy. Limitation of fluid must be carried out with caution. Excessive quantities of fluid are,

however, certainly to be avoided, so that a diet of milk only—three litres of milk being taken daily—is a mistake, especially in the contracted kidney. One to one and a half litres of milk should be given combined with other articles of diet. It is well known that in renal dropsy, digitalis and the diuretics belonging to the group of purin bodies—caffeine, diuretin, agurin, theocin—are often of great service. They bring about the elimination of a quantity of water and salt from the body without damaging the kidneys. The question cannot, however, be regarded as yet settled, for Drs. A. Bittorf and G. Jochmann, in an article on "Sodium Chloride Metabolism," state that the conditions present in renal disease are very variable. If cardiac failure is present, the conditions are the same as in uncompensated heart disease. The elimination of chloride is good, and to a great degree independent of the excretion of water. By increasing the amount of salt taken in acute nephritis with oedema there was brought about an increased output of sodium chloride and water, and afterwards the same patient, when without oedema and with good excretion of water, sometimes showed a delayed excretion of chloride. In chronic parenchymatous nephritis, there is very good, seldom delayed elimination of chloride with normal output of water. In chronic interstitial nephritis there is generally good chloride excretion.—*The Bristol Medico-Chirurgical Journal*.

Treatment of Headache by Physical Methods.

DR. RIEDEL discusses in the *Berliner klin. Wochenschrift* (No. 20, 1907) the above subject as elaborated in the Hydrotherapeutic Institute of the University of Berlin. The process of treatment varies with the nature and cause of the headache. In the *hyperæmic headache* one has to consider whether the congestion is acute or chronic, active or passive, arterial or venous, whether there is a superadded psychical or toxic element such as coffee, tea, alcohol or nicotine. Patients suffering from this kind of headache find relief in a definite exercise which relaxes the musculature of the head and neck. This indicates a method of physical treatment developed by Noegeli. The head is firmly, vigorously and steadily raised and held in a state of hyper-extension for one and a half to two minutes. The effect is a stretching of the blood vessels, a better flow of venous blood and improved circulation of cerebro-spinal fluid. Hydro-therapeutic measures of cold compresses, &c., are also to be employed.

In the headache of the anæmias and chlorosis, one often has to deal with increased intracranial pressure from translation into the ventricles.

A foot bath is likely to increase the pain, but hot compresses to the forehead are well tolerated. General massage to the scalp to promote cerebral circulation is most effective. The *rheumatic headache* is essentially a myositis of general or local distribution on the scalp structures. Fibrous nodules may be detected on palpation; these must be diagnosed from enlarged lymph glands. This headache is extra-cranial in origin, and the sensations of the patient are of a "tearing" character, and are often associated with other rheumatic manifestations. Well directed massage is by far the best treatment for his condition, although an increase of the pain may follow the earlier manipulations. With seances of quarter of an hour daily the treatment will last one month. Hot air douches, or hot dry compresses are useful in addition, and hair toilet should receive attention. General anti-rheumatic treatment is useless if the myositis is not generalised.

Neuralgic headache is also treated by means of thermal applications and massage. The vibratory apparatus to the painful nerve points is useful. Quite recently exposure to X rays has been employed. This treatment is unavailing when the neuralgia is of reflex origin in such organs as the brain, eye, ear, nose, intestines or genital tract of females. The therapeutical triumphs of physical methods are mainly evinced in connection with the headache of neurasthenia. The physician must first discover by means of palpation the tender spots on the scalp, of which the patient is usually unconscious. There may be as many as 200. Systematic massage applied to these eventually reduces their sensibility to the vanishing point. An extensive array of physical measures may be used for the headache of neurasthenia, including air, sun, and blue light baths, but it is most important that the idiosyncrasies of the patient be studied in the prescription of this kind of treatment. A modification of Bier's method of hyperæmia is very serviceable in the exacerbations which attend the neurasthenic headache. The neck of the patient is grasped, avoiding the larynx, and compressed until feeble pulsation is felt, taking care not to obliterate the arterial pulse. The face becomes congested, but should not be cyanosed. Then follows massage, by stroking movements of the cervical veins in the direction of the sterno-mastoid muscle. This is followed by Naegeli's procedure, and the play of a vibratory apparatus. In devising and selecting physical methods of treatment great care must be exercised so as not to bring this branch of therapeutics into disrepute, and above all patience on the part of the physician and the patient is demanded.—*The Folia Therapeutica*.

The Diagnosis of the Vertiginous Conditions.

VERTIGO.

(A)

WITH AURAL DISEASE.

(a) Nerve-deafness.

I. Sudden—

- | | | |
|---|----|---|
| (1) Idiopathic | .. | Labyrinthine effusion (Mènière's disease proper). |
| (2) Traumatic (blows, explosions, etc.) | .. | Concussion; hæmorrhage in labyrinth. |

II. Acute

..	Acute labyrinthitis (simple, infectious, etc.)
----	--

III. Chronic

..	Chronic labyrinthitis, congestion, anæmia.
----	--

(b) Obstructive deafness (Mènière's symptoms).

- | | | |
|-------------------------|----|---|
| I. With suppuration | .. | Congestion, pressure of granulations, purulent labyrinthitis. |
| II. Without suppuration | .. | Tympanic tension, sclerosis, etc. |

(B)

WITHOUT AURAL DISEASE.

a) Unconsciousness.

- | | | |
|--------------------------------|----|-------------------------------|
| (1) Aura, etc. | .. | Epilepsy. |
| (2) Momentary unconsciousness— | | |
| With cardiac weakness, etc. | | Syncope. |
| With cough. | | Laryngeal vertigo or syncope. |

(b) No unconsciousness.

- | | | |
|---------------------------------|----|---|
| (1) Relieved by closing eyes | .. | Ocular vertigo, neurasthenia, functional vertigo. |
| (2) Worse on closing eyes | .. | Locomotor ataxy. |
| (3) Unaffected by closing eyes— | | |
| Dyspepsia, etc. | .. | Gastric vertigo. |
| Toxic causes | .. | Toxic vertigo. |
| Pulse tension | .. | Renal, gouty vertigo. |
| Redness of face, etc. | | Cerebral congestion, climacteric, etc. |
| Pallor, etc. | .. | Cerebral anæmia. |

Injury to head . .	Traumatic vertigo, concussion.
Headache, optic neuritis, ophthalmoplegia, paralysis, etc. . .	Organic cerebral disease.
Nervousness, stigmata, hemianæsthesia, etc. . .	Neurasthenia, hysteria.
Unilateral headache, scotoma, etc.,	Hemicrania.
— <i>The Medical Review</i> .	

Magnesium Salts in Epilepsy.

GALCATESSA (*Gazz. degli. Osped.*, July 21st, 1907), recalling the beneficial effects of calcium chloride in convulsive attacks, has carried out some experiments on six cases of essential epilepsy with salts of magnesium. The salts selected were the sulphate and the chloride given hypodermically. The doses of the sulphate was 1 c. cm. of a 1 in 5 solution and a corresponding dose of 1 in 2 solution of the chloride. The best results were obtained in a bad case of nocturnal epilepsy—the patient had never been known to go two successive nights without an attack; under treatment he had an interval of nine days without a fit. On the whole the treatment was beneficial. Syphilitics, those with new growths, or traumatism did not, as one might expect, derive any benefit. Probably the salts act partly by improving the condition of the serum, partly as disintoxicating agents, and partly by a direct action of the ions on the nervous elements.—*British Medical Journal*.

Fowler's Position.

Fowler's position is the placing of a patient in a semi-erect posture at an angle of 45° or less, and maintaining him there by means of supports and pillows. By this means, in septic abdominal cases, the septic fluids from the absorbent and dangerous area of the diaphragm and upper abdomen are drained to the less absorbent and safer area of the pelvis and allowed to escape by a large supra-pubic drain which passes to the bottom of the pelvis. The employment of this position constitutes an important advance in the treatment of septic peritonitis.—**DR. MURRAY MACLAREN.**—*Ibid.*

SURGERY.

Supernumary Testicle.

J. POTARCA—(*La Semaine Medicale*, May 8, p. 228).—Cases of supernumary testicle are very rare and those in which the parts have been examined after death or by operation much more so. Probably many cases so described were cystic tumours of the spermatic cord which in many instances are extremely difficult to diagnose when their translucency cannot be demonstrated. Too much reliance has been placed on the peculiar sensation elicited on compressing such tumours, as Le Dentu has shown that the testicular sensation is present in any formation having intimate relations with the spermatic plexus.

A soldier, aged 21, was seen. Since birth a fulness of the left side of the scrotum had existed. He had noticed that it contained two masses each about half the size of the right testicle. This condition, though not actually painful, had caused him some inconvenience. After a fall, at the age of 14, the left side of the scrotum became more swollen and fluctuating. On joining the army, the swelling increased as the result of riding and he had to enter hospital where the writer found the left side of the scrotum to be much larger than the right and elongated in form, with a slight constriction in its long axis. Palpation revealed fluctuation and also 2 mobile tumours of equal size and form which were connected by a double cord directed to the inguinal canal. These bodies were of similar consistence to the right testicle and slightly more sensitive to pressure. They were situated one in front of the other, the anterior one being somewhat lower. The fluid in the scrotum could not be returned to the abdomen by pressure.

On incising the tunica vaginalis under local anæsthesia about 4 ozs. of fluid escaped, and the writer found that the bodies were two testicles. Each was the size of a pigeon's egg and had a distinct spermatic cord with a separate vas deferens which it was possible to trace to the inguinal canal. A double serous membrane enveloped the glands with their cords. No trace of epididymis was found at the site of attachment of the cords, but at the lower portion of each testicle there was an excrescence as large as a lentil. The vasa deferentia appeared to be of normal size though the testicles were atrophied. The tunica vaginalis was stitched round the cords and returned to the scrotum which was then sutured and united by first intention.—*The Medical Review*.

A New Operation for Femoral Hernia.

Moschcowitz (*N. Y. State J. of Med.*, Oct. 1907).—Believing that most of the methods of operation for femoral hernia at times fall short of accomplishing a cure, the following operation is presented, which, while original with the author, corresponds with the Ruggi method for femoral combined with Bassini's method for inguinal hernia, and is also similar to a method described by Silver. The incision is made as for inguinal hernia above Poupart's ligament, but in certain cases is extended vertically down over the femoral sac; the aponeurosis of the external oblique and transversalis fascia is divided and the sac exposed at its neck beneath Poupart's. It is tied off at the peritoneal cavity, which by this method is possible, but by most other methods cannot be done even when the strongest traction is used to draw the sac down. Closure of the internal femoral ring is done by passing a curved needle with chromic gut between Cowper's ligament and the periosteum of the pubic bone and drawing Poupart's ligament over the femoral ring, which can usually be done with two or three sutures; that most external goes near to the external iliac vein, the most internal sutures include Gimbernath's ligament. With the spermatic cord in place, four or five sutures unite the internal oblique and transversalis with Poupart's ligament, the cord emerging below. The external oblique is closed and then the skin. This is a preliminary report on the method, as only twenty-nine cases have been operated.—*The Interstate Medical Journal*.

Treatment After Operation for Fistula.

At the completion of operation for fistula of the anus a hard-rubber tube is introduced well above the cut sphincter and gauze tamponed around it firmly. This permits the escape of gas while the barrier of beginning granulation starts upon the raw surface. That granulation may become fairly well established before irritation by the passing feces is permitted; it is best to keep the bowels from moving for six days if possible, a liquid diet being advised. If the packing is saturated with the wound-discharge before this time, it may be removed and fresh gauze inserted; but as this is very painful it is better to leave the original packing several days even if it does become very foul of odor. When the gauze is removed a high enema of olive oil or an ox-gall enema may be given. Later a saline laxative is to be ordered.

After the bowels have moved the wound should be cleansed by gentle washing, the two raw surfaces being carefully separated, iodoform dusted in freely and a strip of iodoform gauze carried well into the rectum

and packed loosely into the cut; with a pad of absorbent cotton over all, supported by a T-bandage. If possible, the dressing should be made twice daily for some days; later once daily; and as the discharge lessens, every second day, though the patient is instructed to clean it as well as possible after each bowel-movement. Should granulation be too slow, dressing with Balsam of Peru daily will soon stimulate the surfaces sufficiently to insure early healing.

The patient should, when circumstances permit, lie in bed two weeks; but most will insist upon being at work in ten days, which does not greatly retard healing if operation has been done properly. Most careful attention must be paid to building up the general health of the patient during convalescence. Temporary loss of sphincteric control need not occasion anxiety.—*The American Journal of Clinical Medicine*.

Management of the Adipose Layer in Suturing.

The method which I have employed for many years in abdominal work is as follows:—(1) A continuous suture of very small catgut for the peritoneum, in order to cause the least degree of irritation which would lead to plastic exudation and subsequent peritoneal adhesions. (2) A continuous suture of small or large catgut for the posterior and anterior sheaths of the abdominal muscles, allowing atmospheric pressure to close out "dead spaces" evenly in the muscle tissue. (3) A continuous catgut suture through the skin only, carefully avoiding the adipose layer. If the adipose faces of the wound are pressed snugly together before the last knot is tied, they will adhere so firmly and evenly that it will be difficult to separate them twenty-four hours later, if for any reason it becomes necessary to reopen the abdominal incision.—ROBERT T MORRIS in *Surgery, Gynecology and Obstetrics*.

OBSTETRICS & GYNÆCOLOGY.

Retroversion of the Gravid Uterus.

THE subject of retroversion of the gravid uterus is one of great importance, and one of sufficiently frequent occurrence to be of interest to all. The symptoms produced by this condition are not, as a rule, clearly marked until either abortion is threatened or retention of urine occurs. When abortion is threatened, or actually occurs, it is caused not so much by the uterine displacement as by an endometritis, which often accompanies backward displacements of the uterus. Moreover, abortion occurs in these cases, as a rule, within the first two months, or, at all events,

considerably before the time at which the uterus becomes large enough to cause retention of urine. Further, when the uterus has become large enough to cause retention of urine abortion does not often occur. This teaching is that of Herman, who has stated that out of a considerable number of these cases treated in the London Hospital none aborted. It cannot, however, be said that abortion never occurs after retention of urine, because cases are known which prove the contrary.

Confining attention to cases which have gone on to retention of urine the history related by the patient is generally very clear; as a rule they state that they have had a period of amenorrhœa of from three to four months' duration, and then with an accompaniment of back-ache and bearing down pain the urine begins to dribble away. This history is really almost diagnostic, but the fact that the patient says she is "constantly passing urine" is apt to mislead, and to lead to the belief that she has frequency of micturition.

The fact really is the opposite: the patient has retention of urine with overflow. If such a case is treated without a complete examination very serious results may happen. On examination of the patient a rounded fluctuating swelling is found in the mid-line of the abdomen reaching to a variable height, even to the ensiform cartilage. This is the distended bladder, and if any doubt of its identity exists it may be dispelled by the passage of the catheter.

On vaginal examination the cervix uteri will be found high up and displaced so that it looks towards the symphysis pubis, whilst in Douglas' pouch will be felt a soft, boggy, rounded swelling. In the face of the above-mentioned definite history with these findings there is seldom any doubt as to the diagnosis. It sometimes happens, however, that the patient has had one or more slight irregular hæmorrhages, and that other signs of pregnancy are not definite. In such a case there may be a doubt as to the identity of the swelling in Douglas' pouch. On emptying the bladder, however, there should be no difficulty in establishing the fact that the second tumour is really the uterus. This becomes quite easy if the uterus can be pushed up out of Douglas' pouch and anteverted. Its character, consistence and shape will then, as a rule, make it clear that a pregnant uterus is being dealt with. If this condition remains undiagnosed, sooner or later the bladder becomes infected, even though no catheter has been passed. This happens the more readily because the resistance to infection is lowered by chronic over-distension. The results of infection of an over-distended bladder may be exceedingly severe; the whole mucous membrane of the bladder has been known to slough.

The consequences to the uterus in untreated cases are of less importance, but incarceration may occur with the occasional production of abortion.

TREATMENT.

Naturally the first thing to do is to empty the bladder. Scrupulous cleanliness and an aseptic catheter will insure this being done without risk of infection. It must not be forgotten that an over-distended is more easily infected than a normal bladder.

It is often necessary to pass the catheter in further than usual before the urine flows, because in these cases the neck of the bladder is rather stretched over the cervix and vagina than actually compressed by them. Indeed, the amount of compression is very slight, and it seems probable that retention of urine is caused in these cases more by some interference with the nervous mechanism of micturition than by mechanical obstacles. Enormous quantities of urine may be retained, even as much as five pints.

Having emptied the bladder the question arises: What is to be done with the uterus? The ideal procedure is to replace it bimanually at once, pushing up the fundus from the posterior fornix, or from the rectum, and making use of the genu-pectoral position as an aid in this manoeuvre. If this can be done without causing great pain the uterus can be easily kept in place by a ring pessary, and no further trouble ensues. This replacement cannot always be effected at once, and then several courses are open to us. According to Herman, if the patient is kept in bed, and the bladder empty, the uterus always rights itself.

In hospital this method is very successful, and may be carried out in private with equal success if the catheter can be passed at least every eight hours. According to Sinclair, the uterus will right itself after once emptying the bladder if a large ring pessary is placed in the vagina and the patient kept in bed lying on her side.

Occasionally it is necessary to give an anæsthetic to replace the uterus if the above-mentioned more simple methods should fail: but they very rarely do fail. In an occasional case it occurs that the uterus is bound down by inflammatory adhesions, and becoming pregnant causes retention of urine. In such a case it is impossible to replace the uterus, nor will it right itself if the bladder be kept empty. The only possible treatment is to open the abdomen, separate adhesions, and lift the uterus up out of the pelvis. The diagnosis of this condition is very difficult, but the severity of the symptoms would probably suggest laparotomy on other grounds.—*The Hospital*.

The Treatment of Placenta Prævia.

ZWEIFEL, Leipzig (*Munchener m. Wchnschr.*, 1907, No. 48, S. 2361), gives the following as the chief points in the treatment of placenta prævia:

(1) Any profuse bleeding in the second half of pregnancy which raises a suspicion of placenta prævia, must, on account of the gigantic risk, be treated so that a renewed hæmorrhage may not possibly prove fatal to the mother. This may be effected by keeping the woman plugged for some time, at all events for a week, in case labour does not come on sooner. For such a prolonged tamponade the colpeurynter is irreplaceable. The inconveniences, however, of this prophylactic treatment, which it is hard to carry out in a private house, make it advisable for the patient, when possible, to enter an institution.

(2) Colpeurynters, if kept in oil or glycerine, may be preserved for years without leaking.

(3) For plugging, one must always use material free from germs. If no colpeurynter is available, the cotton wool, or gauze, if not certainly germ-free, may be made so by boiling it in water to each litre of which 9 grammes of kitchen salt and a tablespoonful of strong vinegar have been added; but this method is a makeshift, only to be resorted to when necessary.

(4) In the treatment of the labour, rupture of the membranes is the method to be preferred on account of its safety and simplicity; it can, however, only be effectual when the membranous sac projects and, in placenta prævia, this is seldom the case.

(5) As a rule the surest way of arresting the hæmorrhage, while preserving asepsis, is by turning the child as soon as possible; when the cervix is insufficiently dilated this may be done in the Braxton Hicks way.

(6) Extraction should not immediately follow version unless the os uteri is completely dilated or nearly so, because of the danger of cervical lacerations.

(7) It must be admitted that this expectancy is dangerous for the child, and that, sometimes, acceleration of the birth would be desirable in its interest. Whenever laceration of the os is not to be feared, one may, according to the circumstances of the case, adopt more active measures and, since the lacerations only occur during the dragging down of the head, it will still be possible by delay in that stage of the extraction, to avoid laceration and, also, to save the child from suffocation if the obstetrician holds his finger so that the child can draw air into its lungs, or if

a catheter is passed into its mouth. Even without any traction, and without any danger of laceration, the os uteri in a few minutes will slip back over the head.

(8) In placenta prævia centralis one should, in the first place, ascertain whether one cannot with the two fingers introduced for combined version reach forwards above the symphysis round the anterior edge of the placenta, because this is less detrimental to the child than forcing through the placenta itself. In case the edge of the placenta cannot be passed, the obstetrician can always fall back upon piercing the placenta, though after this proceeding hardly a single child survives, and it is therefore useless to try and hasten the extraction of such a child.

(9) In cases of placenta prævia, labour is often premature, and then one should not attempt active treatment which offers little prospect of saving the child's life, and is always more dangerous for the mother.

(10) We are disinclined to accept the suggestions recently put forward for treating placenta prævia by abdominal or vaginal Cæsarean section. Not one of our fatal cases could have been saved by such treatment; on the other hand, by its adoption, our mortality would certainly have been greater.—*The Journal of Obstetrics and Gynecology*.

The Treatment of Retention of the Membranes.

TH. SCHNEIDER-GEIGER (*I.D.*, Basel, 1906) concludes his thesis as follows: (1) The results of retention of the membranes, as regards the parturient woman, may be described as insignificant. (2) The prophylactic removal of retained membrane with the finger or by the help of an instrument immediately after labour, should be absolutely abandoned. (3) Appropriate prophylactic measures are to be found in the free administration of ergot, and in vaginal douches. (4) Putrid lochia, resorption fever, and the perhaps slight disturbance of the general system may be rapidly remedied by hot vaginal douches containing 1 to 2 per cent of lysol. (5) Unusual complications are to be dealt with on the accepted general principles. (6) Expectant treatment is to be recommended, especially in private practice.—*Ibid.*

THERAPEUTICS.

Action of Tea.

According to BRUNTON (*Canadian Practitioner and Review*), tea may interfere with nutrition in three ways: First, by lessening the feeling of hunger; second, by rendering food less digestible; and, third, by interfering with the digestive power of the stomach. At the same time that it

thus lessens the nutrition of the body it enables the person to use up much more energy than he or she would be able to do without its aid, and the consequences of this are most evident in the effect on the nervous system. Although tea prevents the sensation of fatigue from being felt for a while, yet exhaustion is going on, both in mind and body, and this usually at length causes disinclination to either mental or bodily exertion, and tends to destroy the power of doing any useful work, either mental or physical, even when the attempt is made. Power or self-restraint is diminished and the person becomes nervous, unduly sensitive, timid and emotional. Not infrequently, ringing in the ears is felt, giddiness, headache, sometimes very severe neuralgia and tremulousness. The tremors seem to be more readily induced by green tea than by black tea, and BRUNTON has known of one case in which two or three cups of green tea were sufficient to induce marked tremor. Neuralgia is very apt to occur in nervous people who are able ordinarily to take a great deal out of themselves, either by sheer force of will or under excitement, and are thus more liable to reduce themselves below normal than those of more lymphatic temperament.

Neuralgia has been described as the prayer of a nerve for better blood, and more of it; and tea, by enabling these people to take even more out of themselves than they otherwise could, will render their neuralgia more severe and more continuous. It is evident that a similar result is to be expected in regard to other nervous functions, and that the stability of the brain may be so seriously impaired that the combination of starvation and stimulation, produced by excessive tea-drinking, will certainly produce a tendency to mental derangement, even if it does not actually determine its onset. In addition to its action on the nervous system, however, tea is a powerful stimulant to the circulation, and, if abused, will lead to feebleness of the pulse and to palpitation. All teas are equally injurious. Ceylon and Indian tea are preferred by many people to China tea on account of their aroma and stimulating qualities, and, so long as they are taken in moderation and prepared in the right way by simply infusing for two or three minutes, and then pouring the water off from the leaves, they will suit healthy people very well. Whether on account of the higher proportion of tannin they contain, or some other reason, which we do not yet know, they are not so good for weak digestions as China tea, which, especially if it is prepared in the way just recommended, by infusion for two or three minutes only, is less likely to cause dyspepsia than other kinds of tea. The physiologic action of tea is usually attributed almost entirely to the alkaloid, theine or caffeine, which it contains, but BRUNTON does not think that this can be the case, because green tea, which contains no more of the alkaloid than black tea, has a much more powerful effect

on the nervous system, an effect which cannot be explained by the somewhat larger proportion of tannin, and must, he thinks, be due to some other constituents in the leaf. Green tea and black tea are not obtained, as many people suppose, from different varieties of the plant, but only differ in their method of preparation; the leaves which form the green tea being roasted in a pan shortly after they are plucked, while those that form the black tea are allowed to undergo a form of fermentation before roasting. BRUNTON sums up his paper as follows:—Tea when properly prepared, and taken in moderation, is both useful and agreeable. When taken in too great quantity, or along with meat, when too strong, when infused too long, or, still more, when boiled or stewed, it is apt to produce digestive troubles. When taken in excess it may produce nervous symptoms of the most serious character, and facilitate, if it does not actually produce, mental degeneration.—*The Dietetic and Hygienic Gazette*.

Cocaine in Vomiting after Anæsthesia.

H. FREUND (*Wien. Klin. Woch.*, Nov. 14, p. 1434).—KAST and MELZER have recently shown that the normal gastro-intestinal canal is not analgesic, and if inflamed may be markedly tender. But a small hypodermic or intra-muscular injection of cocaine completely abolishes the sensibility of the abdominal viscera, whether normal or diseased. This explains the results of LENNANDER, BIER, and other surgeons, who claim that the abdominal viscera are totally insensitive ("REVIEW," 1903, p. 385, and 1907, p. 506). The cocaine used for infiltration of the abdominal wall acted not only locally—but as regards the abdominal organs—as a general anæsthetic. KAST and MELZER also found that the injection of cocaine had a sedative effect and tended to abolish the stage of excitement during general anæsthesia.

The writer argued that if the gastro-intestinal canal is completely anæsthetic all reflex irritability must be necessarily abolished. Vomiting usually occurs after a general anæsthetic as soon as the patient regains consciousness, though its appearance may be delayed for some hours. No one method of combating it can succeed as there are 2 varieties: (1) central vomiting, due to irritation of the vomiting centre in the medulla oblongata; and (2) peripheral vomiting, due to reflexes originating in gastric and intestinal irritation. The former usually occurs during the induction of anæsthesia as the stage of excitement is passing into that of narcosis, but may be delayed until some hours after consciousness is regained. The latter depends partly on irritation by saliva saturated with chloroform or ether and partly by the excretion of the anæsthetic by the gastric mucosa. It is by far commoner than the central variety and occurs

immediately consciousness is regained. It is this reflex vomiting which is most amenable to treatment. WITZEL seeks to obviate it by forcibly retracting the head during the administration and so rendering swallowing impossible. WEISS recommends 10 drops of a 1 per cent. solution of alypin to be given before administration of an anæsthetic, and others advocate dilution of the gastric juice by copious draughts of water. The writer found the following procedure to give the best results:—

Half an hour before the anæsthetic was administered a solution containing 0.01 gm. (about $\frac{1}{8}$ gr.) of morphine and 0.0003 gm. (about $\frac{1}{2000}$ gr.) of scopolamine was injected hypodermically. In women the doses were slightly smaller. The anæsthetic used was BILLROTH'S mixture (chloroform 3, ether 1, alcohol 1 part by weight) unless the patient had heart disease when pure ether was substituted. Before completion of the operation, a hypodermic injection of 0.025 gm. (about $\frac{1}{8}$ gr.), or in women 0.02 gm. of cocaine was given.

The effect of the cocaine was to slow the pulse and render it full, the blood pressure being apparently raised. The patients usually quietly regained consciousness and felt comfortable. Though the doses of cocaine at first employed were less than the effective ones already mentioned, vomiting occurred in only 14 out of 110 cases (12 per cent.) In Dr. FREUND'S experience it occurs in about one third of all cases in which cocaine is not employed. Two of these 14 cases must be excluded, as the vomiting was due to peritonitis and lead poisoning respectively, and in 2 others the dose of cocaine was insufficient. Of the remaining 10 cases (9.4 per cent.) the vomiting occurred in half several hours after consciousness was regained. As in experiments on animals the anæsthesia of the abdominal viscera induced by cocaine lasts at most $1\frac{1}{2}$ hours, it cannot be expected to obviate the occurrence of late vomiting. Ten drops of a 1 per cent. solution are sometimes beneficial if given internally at the onset of late vomiting, but they more often fail, and alypin is, in the writer's experience, no more successful. In 2 of the remaining 5 cases a hearty meal had been secretly eaten just before the administration of the anæsthetic and in a third the injection was given later than usual and immediately before the termination of the operation. Thus if an operation is for any reason prematurely abandoned the injection should be given intra-muscularly as its action is then more rapid. In 2 cases there had been vomiting during narcosis; this ceased after the injection of cocaine but returned with consciousness. In the fifth the vomiting was directly attributable to the cocaine, which had been inadvertently given in the full dose for male adults to an anæmic girl. The most

advantageous time for the administration of the injection before completion of the operation has not been determined:—*The Medical Review*.

Poisoning by Bismuth Subnitrate.

A. PRIOR (*Munch. Med. Woch.*, Sept. 24, p. 1934).—That the external application of chemically pure bismuth subnitrate to wounds may produce toxic symptoms has long been recognised ("REVIEW," 1905, p. 328). The most constant symptom is a bluish-black discoloration of the buccal mucosa, often most marked at the edge of the gums, but stomatitis, gangrenous ulceration of the mouth, and salivation are not infrequent. There may be vomiting and diarrhoea even black pigmentation and ulceration of the intestines. Bismuth is probably excreted by the kidneys and in severe cases of poisoning there may be nephritis, the urine sometimes depositing a whitish sediment which gradually turns black. Pains in the muscles and nerves have also been described.

Bismuth subnitrate given internally is usually said to be harmless. Thus VON JAKSCH states that no cases of poisoning have occurred even after such large doses as 30 gm. daily. But COLIN (*Therapeut. Monats.*, 1896) has reported a case in which, after taking 3 gm. within 3 days a tuberculous female had a metallic taste in the mouth, a black fur on the tongue, and a greyish line on the gums. The writer recently observed toxic symptoms in a child.

A breast-fed child, aged $2\frac{1}{2}$ weeks, had frequent, liquid, brown stools, and was constantly screaming. The writer ordered that it should be suckled every 6 instead of every 3 hours and that a little camomile tea should be given in the intervals. Ten gm. of subnitrate of bismuth were prescribed, as much as would lie on the point of a knife to be given every 3 hours. On the following day no change occurred in the child's condition, but early on the following day the writer was urgently summoned. The skin of the face, body and limbs was of a pale, greenish-grey colour and there was intense bluish-black discoloration of the mucous membrane of lips, mouth, and palate. The pulse and respiration were normal. The mother had given the entire 10 gm. (154 gr.) of bismuth within 36 hours. The symptoms exactly resembled those observed after the application of bismuth to wounds and burns. Two days later scarcely a trace of the discoloration remained, but superficial ulcers of the mucous membrane of the hard palate developed. They rapidly healed under painting with weak nitrate of silver solution. For a few days the urine contained a trace of albumin. The intestinal catarrh slowly disappeared.

Only one fatal case of bismuth poisoning is on record ("REVIEW," *loc. cit.*). The rapid recovery of a weakly new-born infant is further

evidence of the slight degree of danger accompanying somewhat alarming symptoms.—*The Medical Review*.

Poisoning by Naphthaline.

LEFEVRE (*Jour. de Med. et de Chirurg. Prat.*, Oct. 10, p. 742.)—A healthy man on entering his room noticed a strong smell of naphthaline. In spite of this he went to bed and slept, but awoke in 2 hours with a feeling of suffocation and covered with cold sweat. There were also severe epigastric pain, shivering, vertigo, tinnitus, and a sense of profound weakness. He rose and, in a semiconscious condition, reached the window, and with difficulty succeeded in opening it. As he revived he again observed the odour of naphthaline and found a considerable quantity of this substance under the bed and in various articles of furniture. As the more severe symptoms passed off, he suffered from headache, weakness and abdominal discomfort, accompanied by diarrhoea, but was able to sleep for some hours. He completely recovered in a few days.

Cases of naphthaline poisoning are rare. The writer quotes the following observation by GEJULA (*Jour. de Hygiene*, 1900). A lad, aged 16, had suffered daily for several weeks from headache and vomiting on awaking from a nap to which he was accustomed during the day. For these symptoms he could assign no satisfactory cause. But, during an attack, GEJULA at once perceived a strong odour of naphthaline in the room which was found to proceed from a packet under the cushion of the couch on which the patient had been lying. In view of the frequent use of naphthaline, both for medical and domestic purposes, it is well to exercise caution as regards sleeping in rooms strongly impregnated with the vapour.—*Ibid.*

Treatment of Acute Mercurial Poisoning.

SALVATANI (*Rif. Med.*, July 13th, 1907) points out that the toxic action of mercury depends largely on the degree of concentration of the mercurial ions, and the more effectually this concentration can be lessened the more efficacious will be the antidotes employed. From certain experiments carried out by the author (by endovenous injections in animals) it was found that the power to lessen this concentration was least marked in Chloride of Sodium and more marked in the following drugs in ascending degree—bromide, iodide, sulphide, and hyposulphite of sodium (thiosulphate). In treatment he distinguishes an external (including treatment by the stomach) and an internal antidotism, the latter being applied to the drug after absorption. By external antidotes we try to immobilise chemically and pharmacologically the ions

of mercury not yet absorbed; by internal antidotes we try to lessen the concentration of the ions until the poison can be eliminated from the system. As external antidotes albumen is good, but H_2S and the sulphites are better, as they hinder absorption, lessen the corrosive action, and diminish the local toxic action. The hyposulphite should not be used where there is danger of general poisoning, but for small doses (for example, where a strong mercurial solution has got into the eye) it should be very useful. As an internal antidote the hyposulphite of soda and H_2S are recommended. The hyposulphite should not be given by the mouth, but only endovenously or hypodermically; the H_2S may be given in the form of enemata, inhalations, or by the mouth. When one can feel sure that all the mercury has been absorbed from the intestinal canal, hyposulphite of soda may be given by the mouth.—*British Medical Journal*, Dec. 14th, 1907.

Effect of Spices.

Although the use of spices for the purposes of heightening the flavor of food is almost universal, it is generally recognized that their influence on digestion is detrimental. Some experiments recently carried out tend to prove that while spices stimulate the motor functions of the stomach, they progressively impair the secretory functions, and in the long run inhibit the production of hydrochloric acid. On the whole, therefore, the ingestion of spices hinders rather than accelerates digestion, though an exception may be made in respect of persons in whom slowness of digestion is due to a deficiency of muscular activity on the part of the stomach, and also possibly of the victims of hyperacidity.—*Indian Lancet*.

OPHTHALMOLOGY.

Glaucoma; the Importance of its Early Recognition.

MARY BUCHANAN sketches briefly the etiology, pathology, and symptoms of glaucoma (*New York Medical Journal*). Glaucoma is divided into two forms: (1) Primary glaucoma, coming on independently of previous inflammation or traumatism, and (2) secondary glaucoma, which follows either of these and is caused by them. The direct cause is interference with filtration. The contributing causes are many. The diagnostic points in acute glaucoma are: (1) The rapid failure of sight in that eye; (2) increase in tension; (3) the dull cornea, it looks steamy, like glass that has been breathed upon; (4) anesthesia of the cornea; (5) the semidilated and non-responsive pupil; (6) shallow anterior chamber, the iris seems to be pushed against the cornea; (7) the lids are somewhat

swollen and discolored, conjunctiva injected and swollen, and there is a red, dull, ciliary injection; (8) pain in the eyeball, reflected over the brow and temple and around the lower margin of the orbit. Having diagnosed acute glaucoma, summon the nearest oculist, for a few hours' delay may mean blindness. While awaiting his arrival drop a one or two per cent solution of eserine sulphate into the eye, repeating the dose every fifteen minutes until the pupil is pin-point. Use hot stupes all the time, give morphine hypodermically and a cathartic. An iridectomy is the treatment for acute glaucoma. Subacute glaucoma demands eserine sulphate and iridectomy, but the time for operation must be between the attacks.—*Medical Record*.

Potassium Chlorate in Eye Affection.

KOSTER, of Leydon (*Bulletin Medical Bulletin General de Therapeutique*) advocates the use of potassium chlorate in the treatment of diseases of the cornea and of the conjunctiva. Three per cent. solutions may be freely used in these cases, either by instillation, lotion, or as a local bath. To the healthy conjunctiva this causes no pain, but to the inflamed conjunctiva it causes a light burning. When finely powdered, potassium chlorate only causes a moderate pain and has no injurious effects. It can be applied in all forms of conjunctivitis, but especially in the chronic catarrhal form; also where there are phlyctenulæ. A case of superficial marginal keratitis was cured completely in two weeks. This agent acts as a disinfectant and as an astringent.—*New York Medical Journal*.

OTOLOGY.

The Prevention of Deafness.

W. SCHEPPEGRELL, M.D., New Orleans (*New York Medical Journal*, September 7, 1907). The author defines deafness, strictly speaking, as a total inability to hear, but it is applied also to more or less partial inability to distinguish sounds. In the former definition deafness is most frequently associated with mutism, and when the deafness is congenital or acquired in early infancy, deaf-mutism is invariably the result, the mutism in such cases being, of course, simply the natural result of the child's never having heard articulate speech. Even when deafness develops as late as the fifth or sixth year, or even later, the faculty of speech is gradually forgotten until mutism results, except in those cases in which the child is promptly and perseveringly taught by the method of lip reading. Total deafness associated with mutism is in by far the larger number of cases of congenital origin (about 40 per cent.) the remaining cases being due to various causes, the principal ones being scarlet

fever, cerebro-spinal meningitis, meningitis and measles. This form of deafness presents but little for consideration as regards prophylaxis, except possibly the marrying of deaf-mutes, although not more than 25 per cent. of the offspring are deaf-mutes. Deafness as applied to partial inability to distinguish sounds is by far the more frequent form. The author in a previous report of 11,855 cases of diseases of the nose, throat and ear, showed 2,284, or about 20 per cent., were cases in which a defect of hearing to a greater or less degree was involved.

While deafness is usually considered a disease by the laity, it is in reality but a symptom, and one that may be easily remedied, such as in the case of impacted cerumen, or it may involve the very life of the patient. Degrees of deafness vary even more than the conditions to which they owe their origin. In mild cases it is frequently unsuspected by the patient, and is usually discovered by accident. In children especially, defects of hearing are often unobserved, the deafness being mistaken for inattention. By the effort of listening the normal power of hearing is considerably increased, so that once the child's attention is attracted it apparently hears perfectly. But soon this effort becomes fatiguing, and the hearing gradually diminishes until the attention is again stimulated. This explains why such cases in children are so often attributed to dullness or inattention. Children showing such symptoms should invariably be carefully examined, and the majority will be found to be suffering from defects of hearing. By far the greater number of diseases which affect hearing owe their origin to a pathological condition in the nose or throat, the point of entry being the eustachian tube. A comparatively small number arise externally from the auricular canal, such as impactions of wax, eczema and furunculosis of the canal, foreign bodies, traumatism, etc., but the majority of these do not offer serious menace to the organ of hearing. Even in these cases, however, care should be exercised. Rupture of the drum from excessive force in syringing for cerumen or from inexperienced efforts to remove a foreign body may be responsible for subsequent deafness. The tooth-pick with men and the hair-pin with women are responsible for a large number of cases of infection of the external canal, being employed to relieve an itching of the ear. It is advisable to explain this to patients with such tendencies. Adenoids, even though of not sufficient amount to affect nasal breathing, should be removed on account of their tendency to cause a disturbance of the eustachian tube. Suppurative inflammation of the ear should call for an immediate incision of the drum, as allowing the drum to rupture will not only prolong the suffering of the patient and expose him to the dangers of complications, but by destroying more

drum tissue will cause more deafness. When the case becomes chronic the perforation nearly always remains patent and results in poor hearing. Nasopharyngeal catarrh, being an important factor in the development of ear disease and consequent impairment of hearing, is the more important factor on account of its frequency. The presence in the nasopharynx of a secretion in which pathogenic micro-organisms are nearly always present, is a constant menace to the ear on account of its proximity to the orifice of the eustachian tube. In addition to this the efforts of the patient to dislodge the secretions tend mechanically to injure the delicate mechanism of the middle ear, so that even in such cases where there is no evidence of disease of the ear the function of hearing is nearly always below the normal. Nasopharyngeal catarrh should, therefore, be treated with the care and perseverance that its importance demands and not be neglected as a necessary evil, as many persons do. All forms of nasal disease and nasal abnormalities are a source of danger and require their appropriate treatment. The use of the nasal douche causes many cases of ear disease, and its method of employment should be shown by the physician. The patient should be instructed to blow the nose very gently after using such a douche, and with both nostrils unobstructed. Another condition of importance is the non-suppurative inflammation of the ear. In this the obstruction of the eustachian tube is frequently so slight as not to warn the patient, as is in the catarrhal form, and there is no pain, as in the suppurative type. Frequently the first warning that the patient has is the increased effort to hear, and it is surprising how defective the hearing may become, provided the loss is gradual, as is the case in this disease, before the patient observes it. Subjective noises in the ear is another late symptom which first attracts the attention of the patient. Many of such patients consult the aurist only after the disease has made such head way that cure is out of the question, whereas in the early stage it could have been arrested and much benefit attained.—*The Medical Review of Reviews*.

Earache.

(*Pediatrics*, 1907 Vol. xix, p. 551).—J. B. RAE emphasises the importance of curing ear discharges. Ear-ache in babies may be only indicated by fretfulness, restlessness, inability to sleep, or broken sleep. The child at intervals raises the hand to the ear or cries when it is touched. In older children there is no pain on manipulation of the auricle. Fever is the most common symptom. Other causes being excluded, the ear must be examined with a speculum and reflected light. The state of the drum varies from a peripheral injection of the membrane, with clear

areas behind and in front of the malleus handle, to a deep and fiery redness with bulging of the drum and complete loss of all land marks. In the latter stage immediate free incision is indicated. In early stages give a saline cathartic, restrict the diet, and let the affected ear rest on a hot water or hot salt bag. Adenoids are almost always associated with acute otitis media and should be removed, if the otitis is in the early stage. Otitis media, in the course of exanthemata, may give rise to no symptoms and yet cause rapid and extensive destruction. The only safeguard is daily aural inspection and immediate treatment. Furunculosis sometimes is the cause of ear ache; foreign bodies rarely.—*British Journal of Children's Diseases*.

Impacted Cerumen.

Much suffering from ear-ache, as well as deafness (particularly in the aged) comes from impaction of cerumen in the external auditory canal. This may be readily removed by warming a little dioxide of hydrogen, pouring it into the ear while the patient is lying on a bed or table, and allowing it to remain for about five minutes. Then if the ear be gently syringed with warm solution of bicarbonate of sodium the plug will be easily removed. If not, it will be next day on repetition of the procedure.—*The American Journal of Clinical Medicine*.

DERMATOLOGY.

The Use and Abuse of Soap.

APART from the manifold surface-impurities derived from the atmosphere and from fomites, the secretions of the skin itself need the frequent assistance of soap and water for their adequate removal. The cleansing power of this commodity depends upon the extent to which it is able to emulsify all fatty matter by the splitting off of just the right quantity of alkali when it is dissolved in water. While the emulsifying power of soap must be sufficient for this purpose, it is most important that no injury be inflicted upon the living epidermic cells. The most extraordinary ideas are rife with regard to the kind of toilet soap that is used for the daily ablutions, the most unsuitable varieties being constantly employed, until, at last, the human epidermis, which is generally most long-suffering, can stand it no longer, and so irritation of the skin is gradually set up.

SOME HARMFUL EFFECTS.

Cutaneous troubles resulting from soap depend upon three principal factors: (1) the amount of free alkali present; (2) the presence of some other

"foreign" ingredient; and (3) individual susceptibility. A soap containing more than a trace of free alkali is very apt to cause irritation of the skin, as manifested by varying degrees of erythema which may lead on to a condition of actual eczema. The delicate skin of the face suffers most in this way in proportion to the length of time in which it is in contact with the soap. The superficial layers of the epidermis become eroded, so that the cells beneath fall an easier prey to the effects of changes in temperature, the action of irritants, or the invasion of micro-organisms. Inferior forms of fat, animal or vegetable, in addition to imparting an unpleasant sense of greasiness to the soap, may favour the growth of germs in the skin, and, by hindering the proper emulsification of fatty matter and dirt, will lead towards the retention of the cutaneous secretions with consequent disease. The very doubtful quality of "transparency" may be due to the presence of sugar, and not to glycerine, as thought. This would be distinctly harmful in affections of an eczematous type.

It may be laid down as an axiom that all soap is more or less contra-indicated in acute eczema, and even in the chronic form of the disease the selection of the soap to be used needs to be made with great care. It is an unfortunate and much-to-be-regretted fact that soaps which profess to "cure all skin diseases" are still widely advertised, command a ready sale, and, as often as not, only increase the cutaneous irritation of the suffering purchaser. Soaps which are welcomed in seasons of "spring-cleaning" are quite commonly used by mothers and nurses for scouring the delicate skins of young and tender infants because they are "so nice and cleansing," whereas they are only fit for scrubbing floors. Strong carbolic and tar soaps have an immense popular reputation for curing skin diseases, from eczema to ringworm. The use of soft-soap is quite legitimate in cases of bad seborrhœa capitis, and in eruptions where there is much scaling and crusting, as in psoriasis or impetigo.

It has been found, by actual experiment, that the best all-round soap is obtained by the incorporation of one part of alkali to about eight parts of fatty matter, but these proportions vary in different makes of soap, according to the purpose for which they are intended. The idea of employing soap as a therapeutic agent originated with HEBRA and was amplified by AUSPITZ; but it was reserved for UNNA and EICHOFF to suggest and formulate what are now known as neutral soaps, and to lay down the principle of superfatting. A strongly alkaline soap in the form of the familiar Spiritus Saponis Kalinus (HEBRA) is useful for its macerating effect upon the horny layer, but its action requires to be carefully watched, lest the destructive effect becomes too pronounced. Superfatted soaps containing

cold cream with or without oatmeal, may be employed with caution in all but the most acute forms of eczema, for they tend to prevent cracking of the horny layer. The great test of the action of any toilet soap, as JAMIESON has pointed out, is to observe its effects upon the skin of a young infant.

MEDICATED SOAPS.

The so-called "medicated" soaps may be divided into two groups: (a) those that are used merely as prophylactics, such as the various disinfectant soaps containing carbolic, sanitas, izal, etc.; (b) the really therapeutic soaps, which generally contain an active ingredient to the extent of ten per cent. There still exists some prejudice with regard to the principle of soap-therapy, but it will at once be seen that this method of applying drugs to the skin is cleanly, convenient, and decidedly economical as compared with the use of ointments. A certain amount of penetration of the medicament is bound to occur, and this may be intensified by covering the area with gutta percha tissue. The use of a superfatted ichthyol soap (10 per cent.) is nearly always attended with considerable improvement in acne and rosacea, while balsam of Peru and sulphur can be similarly incorporated in a soap for the treatment of scabies. Anthrasol, a colourless form of tar, may be employed with advantage in cases of psoriasis or chronic eczema. Whatever variety be chosen, the affected areas may be simply washed with the soap, the lather may be allowed to dry in, more or less vigorous rubbing may be undertaken, or an impermeable covering may be placed over them afterwards, according to the effect it is desired to produce. The application of remedies in this manner is certainly less unpleasant to the patient than when sticky ointments are used, and, if thoroughly carried out, it is quite as efficacious.—*The Hospital*.

Pigmentations of the Skin.

The features of the several varieties of pigmentation, as especially differentiated from Addison's disease, are discussed by GRUNBAUM, of London, as follows:

The pigmentation associated with pregnancy is usually of but recent date, but may, of course, be accompanied by vomiting and languor, which makes definite exclusion of Addison's disease far from easy.

The increase of pigment occurring in advanced chronic tuberculosis, may be due in a certain number of cases to the adrenal glands becoming affected, and in those it may be impossible to distinguish it from the ordinary typical disease, but in the majority, without suprarenal destruction, the pigmentation is much more uniform.

Vagabond's disease usually permits of ocular demonstration of the cause of irritation, and on removal of the cause the pigmentation gradually fades.

Von Recklinghausen's disease, or multiple neurofibromata, presents very varying aspects, occasionally the pigmentation is marked, while the other skin alterations and the neurofibromata can only be detected upon minute examination.

Hemochromatosis is a rare disease; the pigmentation is often, but not invariably, associated with glycosuria and cirrhosis of the liver.

Exophthalmic goitre is usually associated with increased sweating and this is said to cause pigmentation through irritation. The nature of the pigmentation is very similar to that of Addison's disease, but the other symptoms permit of the different diagnosis.

Pigmentation due to arsenic, in my experience, simulates most closely that of suprarenal disease, and cannot be distinguished from it merely by inspection.

Argyria presents a very different color to the pigmentation in Addison's disease. The parts exposed to light are of the deepest color, and this color is slate gray, not brown.

Melasma, due to melanotic sarcoma, is usually uniform and in the majority of cases the primary lesion can be found. When this is not possible the differential diagnosis is often difficult.

Kaposi's disease, or xeroderma pigmentosum, in its typical form leads to the development of epitheliomata, but there seems to be a number of varieties of different malignancy. The author has seen such a close crop of freckles that a face of a dark-brown color seemed to betoken an advanced case of Addison's disease, while the pigmentation of the mouth resembled that of melanotic sarcoma, being intensely black and extremely patchy.—*The Practitioner*.

Dermato-Venereal Don't's.

Don't think that syphilitic eruptions never itch. They may in hairy parts, or accidental causes may produce pruritis. Don't suppose that itching about the morbus venereus is always symptomatic of pediculi pubis. Don't depend upon internal treatment to cure all local syphilitic lesions. Don't promise a cure for psoriasis; it is certain to relapse at some time. Don't confine all your treatment of skin diseases to local measures exclusively. Don't use irritating remedies on acute skin diseases, or *vice versa*. Don't discourage syphilitics; but don't give them too much hope; let them understand the gravity of the disease. Don't deny that you give mercury in syphilis; make your patients know that it is an absolute

necessity in the proper treatment of their disease. Don't mistake mosquito bites for measles; look for the small scarlet point in the centre. Don't call an eruption of wheals an urticaria when it is bed-bug bites; examine the bed, if necessary. Don't take a bee's or a hornet's sting for a boil; pull out the sting and be persuaded. Don't call every macular erythema a syphilitic roseola. Don't frighten your syphilitic patients or they will desert you.—*American Journal of Dermatology*.

Treatment of Ringworm.

DR. G. S. PERKINS, (*Hospital*) recommends an ointment of sodium chloride in soft paraffin as an almost infallible remedy for ringworm of the scalp. The ointment is to be rubbed into the affected area (previously shaved) night and morning until the place is sore—that is usually in three to four days. Some simple application is then used to promote healing. When this is secured, the parasite will be found to be absent, and healthy hairs will soon appear.—*The Medical Times*.

PÆDIATRICS.

The Indications of Buttermilk.

HEIM (*Wiener Med. Wchsehrft* No. 31, 1907). Buttermilk is a food rich in albumen and exceedingly poor in fats, averaging 1/2 per cent., but the composition varies, especially in regard to the fat. This depends upon the amount of care with which the sour milk has been churned and the butter removed from it. MOLL recommended the alkalization of the buttermilk, which is done by adding 3g. natr. carb. succum pro litre before the buttermilk is boiled. The method is based upon experience to the effect that albuminous substances are least neutralized when boiled in a weakly alkaline reaction. When alkalized buttermilk is boiled, the casein is not precipitated in the large lumps of acid buttermilk, but in fine flakes, which float in the fluid instead of settling upon the bottom of the vessel. MOLL'S experiments with artificial nutrition proved that the boiled albuminous substances of alkalized buttermilk are more easily digested than those of acid buttermilk. The fact that alkalized buttermilk yields better results than acid buttermilk, furthermore, is an important argument that buttermilk is indicated only in those cases where fat is to be excluded; for certain observers (SPILLER) attribute the easy digestibility of buttermilk to its acidity.

After the buttermilk has been alkalized in the above-outlined manner, 9 g. wheat flour, 20 g. milk sugar and 20 g. cane sugar pro litre are added, and the whole mass is allowed to come slowly to the boiling point

not only, but should be thoroughly boiled, then rapidly cooled and put on ice. The amount of sugar and flour in proportion to the milk may vary in individual cases, depending upon the age of the child, its gain in weight and the character of the stools. The author never administers more than the abovementioned quantities, but rather not quite as much. The infant receives a bottle of this buttermilk every four hours. It is, unfortunately, not easy to stop its use, even in cases where this is gradually attempted by adding two teaspoonfuls of ordinary boiled milk to each bottle of buttermilk. In the author's experience, the beginning had to be made with only half a teaspoonful, increasing to a teaspoonful at the end of a week or two, and continuing equally gradually.

The length of time during which the buttermilk is prescribed depends, of course, upon the gravity of the case in the first place. In all cases of the exudative diathesis (CZERNY, 1905) the author prescribes buttermilk alone for 10 weeks, after which time an attempt is made to give cows' milk by adding half a teaspoonful of milk to every bottle of buttermilk, increasing the amount of cows' milk by a teaspoonful each week, provided the stools, urine and body weight permit.

Obstipation, a lighter color of the stools, and an ammoniacal odor of the urine are danger-signals that the permissible amount of milk has already been exceeded, and that the buttermilk must be resumed. In numerous cases observed by the author two and a half months elapsed before a change to cows' milk could be made after the infant had previously received buttermilk for a term of 10 weeks.

Besides in the above-mentioned cases, the administration of buttermilk has also been successful in the acute intestinal infections (gastro-enteritis, catarrhal enteritis). Fat is contraindicated in these cases. As shown by Talger, certain volatile fatty acids—which remove alkali from the organism—are formed from the fat under the influence of bacteria. The microscopical examination of the stools is not conclusive in this respect, the presence of these fatty acids being demonstrable only by accurate and complicated chemical examinations. After an acute intestinal infection—the patient having been kept on teas for 24 to 48 hours—buttermilk may be very cautiously begun (half water, half buttermilk four times daily on the first day).

The administration of buttermilk, according to the author, is indicated by the two above-mentioned pathological conditions. He regards it as incorrect to exclude an important food constituent such as fat without urgent reasons. Buttermilk is merely a dietetic food, which is indicated by certain pathological symptoms.—*The Medical Review of Reviews*.

Edema in the Newly-Born and the Infant.

D'Astros (Rev. Mens. Des. Mal. De L' Enf., Sept. 1907) says that edema is a common manifestation in the debilitated newly-born, especially in the premature infant. Simple edema of the newly-born is found most often in premature infants, especially in very feeble infants of this class. It may appear immediately after birth or not for several days. Its first localization is most often in the lower extremities, though it may spread in some cases so as to be more general. In some cases it disappears in 3 or 4 days under proper treatment (external warmth and proper alimentation), though it may last much longer. In the course of such simple edema there is no albumen found in the urine. It is probable that this edema is due to respiratory insufficiency and to circulatory stasis. In certain cases the edema of the newly-born is to be attributed to an acute infection of septicemic nature. Such infection, in nearly all of these cases, has attacked the kidneys, whose power of elimination is therefore reduced. The diagnosis of such infective edema can often not be made at first, but if the case of edema shows albuminuria, or if the umbilicus, the skin, the pharyngeal mucous membrane or the digestive or respiratory tract, show evidences of inflammation, such an infective-edema must be suspected. Certain chronic infections may also produce edema in the infant. In this class, hereditary lues plays a most important role. The edema in syphilitic children may develop later, but at times it may be of diagnostic importance. In cases with enlarged liver and enlarged spleen, the presence of edema adds to the probability of the diagnosis of hereditary syphilis. Affections of the respiratory system may also cause edema. In addition to the infective edema noted above, it is noteworthy that certain forms of cough, especially convulsive cough, may produce a facial edema (influenza and pertussis). Finally, edema may develop as a consequence of grave digestive disturbances following severe cases of enteritis, and true anasarca may develop. In many of these cases there is no albumen in the urine and the edema is due to a retention of the chlorides in the tissues.—*The Interstate Medical Journal*.

THE ANTISEPTIC.

MARCH, 1908.

The Factory Labour Commission.

THE labours of the Factory Labour Commission are nearing completion. In another three months they will have submitted their report to Government. Since November last a great deal of work has been done by the Commission, which will have to be carefully and critically reviewed for the purpose of ascertaining the real needs of the labourers in the factories. A mass of evidence is now before the Commission. So far the Commission have taken evidence in all the important centres of the Bombay Presidency, the United Provinces, Bengal, Burma and Madras. Owners of mills and factories, officials who are supposed to be in touch with the conditions of labour in factories and others who could speak with some knowledge on the subject have placed their opinions before the Commission. Europeans and Indians alike have given evidence. In the United Provinces and in Bengal nearly all the proprietors of big mills and factories are Europeans. A large amount of European capital is invested in the business in India; so that the question is one in which the Indian and the European have perhaps equal interest. If legislation is undertaken to restrict the hours of labour and to impose other conditions on the owners of factories in the interests of the labouring population, Europeans and Indians will be equally affected. Both may with propriety and justice and truth take the same view of the Swadeshi industries and ask the protection of the Government in the Swadeshi spirit. They may take a common cause and press their views on the Government in order that the Indian industry may not suffer in competition with the foreign imported articles. If we are not mistaken much of the cotton stuff which is not taken in as pure Swadeshi stuff is the product of mills owned by European capitalists. If as a result of the enquiry now going on State intervention becomes inevitable there will possibly be a combination of interests to oppose it.

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But with regard to factory labour we may say that it is all Indian. No matter who the owner of the factory is, the labourers are all Indians: and it is but just that where their interests are in serious jeopardy, the State should afford them the necessary protection. Indian labourers, like the mass of the Indian people, are an inarticulate class. They have no organisation, no machinery, by means of which their interests may be effectively safeguarded. The common impulse or sense of self-interest which sometimes makes itself manifest under the most trying conditions, known as *Strike*, is all that the employers of labour need reckon with. But even this, where there is no organisation, is but a feeble weapon wherewith to protect the interests of the labourer. One very potent cause of strikes is low wages. The question of wages does not, however, fall within the scope of the Factory Labour Commission. The Commission have to concern themselves mainly with the conditions of labour in the factories, such as the hours of labour, questions of sanitation, of ventilation, of child labour, of female labour, and of allied questions with special reference to the health of the labourers in the factories. The State has a duty to perform in regard to the health of the people, which, as the good old saying is, is an important source of wealth. This function of the State is of supreme moment where the people to be protected are weak, helpless and ignorant, and enter into contracts, though nominally as free agents, yet really at a great disadvantage; and with regard to this class of labourers is the duty of the State more important and binding than in respect of those who work in mills and factories. It is this phase of the factory labour question which has impressed itself on the Secretary of State whose benevolent intentions in this connection cannot be denied. But nobody in India at any rate will hold that the motive of Manchester towards the question of factory labour in India is all philanthropic, and let us not deceive ourselves not a little of the suspicion with which the project of the Factory Labour Commission is viewed is due to the initiative taken in the matter by the Lancashire manufacturers. But the question of factory labour in India is capable of being viewed apart, by itself, untrammelled by the suspicion and distrust engendered by the action of Manchester. The question of the shortening of the hours of labour may be dealt with from a pure business point of view. It does lie within the region of practical argument to enquire whether any restriction as to the hours of labour in the factories would reduce output and increase the cost of production to such an extent as to place the products of Indian mills at a disadvantage in competition with imported articles. In some of the responsible factory owners and managers do not support the popular superstition in regard to this matter. But of course sentiment,

especially at a time when the militant Swadeshi spirit is abroad, is a factor which cannot be disregarded, and we are in hopes that, whatever conclusions the Commission may come to, they will not fail to deal effectively not merely with the moral, social and economic aspects of the question but even with existing popular prejudices and suspicions. They cannot ignore the vital needs and interests of Indian industries. But the interests of the labourer, though he is not quite so articulate, are not less important. It is no argument that since other kinds of labour and labourers are let alone, to shift for themselves, the State has no right to interfere in regard to factory labour and on behalf of the factory labourer. In the first place other kinds of labour and other classes of labourers are not before the Factory Labour Commission. Secondly, the conditions of labour in the factories are different from those which prevail elsewhere. But we have no doubt the Commission will sift the enormous and varied mass of evidence before them and bestow their best and deepest thoughts on all the phases of the controversy before they submit their recommendations to the Government.

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* ABORTION—ITS CAUSES AND TREATMENT.

BY

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N using the word 'abortion' I mean it to imply the expulsion of the ovum from the uterus at a period before the placental formation is complete, that is, before the end of the third month of pregnancy; therefore, miscarriage and premature labour shall not be discussed in the present paper.

The frequency of abortions in proportion to the total number of pregnancies shows a marked variation in different countries and in different stations of life in these countries. Moreover, the figures of various observers show such marked dissimilarity that they are scarcely to be relied upon; this to my mind is, in the main, due to the fact that they have been guided largely by misleading hospital statistics; misleading, because a large proportion of the cases never enter hospital, while of these again a considerable number never seek skilled advice. Of course, in countries where syphilis and criminal abortion are common, the percentage will be high, but it is difficult in private practice to collect a sufficient number of cases to make one's figures more than approximately correct.

In America the frequency has been estimated at about one in every five or six pregnancies; in Europe at something lower than this, while in Ireland it is estimated that only about one in every twenty five pregnancies ends in abortion. Yet it is more than probable that in all parts the percentage would be considerably raised, if cases of profuse hæmorrhage following upon a menstrual period overdue by a week or two—which are

* Specially contributed to *The Antiseptic*.

frequently very early abortions—were taken into account. The causes of abortions are not always easy to ascertain, but for convenience of description they may be divided into two main headings: "Predisposing" and "Exciting." Of the two, the latter is not of much account for, with the exception, perhaps, of *Criminal* and *Therapeutic* abortions, it may be taken for granted that in the majority of cases the "exciting cause" would have been harmless were it not that a decidedly "predisposing cause" were present. Moreover, we are powerless to do much in the one case, whereas prophylactic measures may do much to remove predisposing factors. Amongst "exciting causes" have been mentioned: violent exercise; falls; frights; severe coughing or straining; violent coitus; alcoholic excess; sudden pyrexia, &c; but any of these, with the exception perhaps of pyrexia, are not of necessity harmful, unless the endometrium is unhealthy; but a sudden rise of temperature is liable to cause the death of the embryo, and then abortion will follow sooner or later; but even this, strictly speaking, should be classed as a "*predisposing*" cause and not as an "*exciting*" one. The usual "exciting causes" in criminal cases and in abortion deliberately induced for therapeutic purposes, such as in cases of incarceration of the uterus, need not be dealt with here.

Endometritis is offered as a predisposing cause in all the works on midwifery, and in a great number of cases it is undoubtedly rightly blamed; but it must be clearly understood that separation of the ovum and its spontaneous expulsion from the uterus, is not invariably the first thing to occur; but rather that the endometritis itself, primary or secondary, or some other cause, first leads to the death of the embryo, which, now acting as a foreign body, tends to be expelled.

Syphilis, maternal or paternal, is a common cause, while kidney disease, lead and other poisonings are less frequently responsible. Excessive twisting of the umbilical cord and a non-syphilitic endarteritis of the vessels of the chorionic villi are well recognised causes of death of the embryo. Heart disease in the mother and placenta prævia are not infrequent causes; but to abnormalities of the decidua itself must we look in a majority of cases for a *raison d'être* of the abortion. Marked displacements of the uterus, especially retroflexion and prolapse, are important causative factors by reason of the irritation and endometritis they give rise to; whilst fibroids, decidua polyposa, deciduitis, and chronic glandular endometritis are frequently proved to be the cause.

The so-called "habit of aborting," where a woman in several successive pregnancies aborts at about the same period of gestation, and for which no definite cause can be assigned, is usually traced eventually to

paternal syphilis or to chronic endometritis. I have recently had a pleasing result in such a case as the former, following the administration of mercury to the husband, although, be it understood, no other suspicion of loves could be entertained; while in another case, rest in bed for a week at what was the menstrual date before conception the prescribing of Liq. Ext. Viburnum Prunifol in 3i doses, ter in die at that period, and the continuous administration for several months of 5 grain doses of Potass. Chlorate, well diluted ter in die, has had the hoped for effect. The drugs appear to act by lessening the irritability and congestion of the uterus and by supplying more oxygen to the organism. This prolonged dosage with Potass. Chlor. has been said to produce enlargement of the thyroid in the infant, but I have closely examined a few such cases and have never observed it.

As the large majority of cases of threatened abortion become "*inevitable*" it is clear that our efforts must be directed largely to the prophylactic treatment if we would substantially reduce the high percentage of such cases. To this end we will reduce displacements bi-manually, while the skilful application of the Smith-Hodge or other form of pessary will maintain the uterus in a normal position until such time as its increasing size will effectively prevent recurrence of the displacement. Endometritis, whether primary or secondary to displacement, fibroids, &c., will be appropriately treated by the judicious use of the curette or by one of the various well known caustic and antiseptic applications, from Iodized Phenol and Zinc Chloride up to Formalin or Perhydrol; while the more intractable cases may demand a myomectomy. Here is a case in point. A young woman came to me a few years ago with a history of four abortions at from 6 weeks to 3 months each. She had "suffered much at the hands of physicians," and, doubtless, the caustic and other applications had been frequently made. I diagnosed backward displacement due to a small fibroid and laparotomy proved the correctness of it. I removed a pedunculated fibroid and performed a ventro-suspension, and she is now the mother of a fine boy of nearly two years. There was no inflammation of the endometrium present, neither was there peritoneal adhesions or signs which would show a probability of uterine incarceration if it should become gravid. The cause of the abortions must have been an abnormal irritability of the uterus worked by the pulling of the fibroid upon the fundus uteri.

There are several varieties of abortion, the diagnosis and treatment of each of which had best be dealt with under separate headings. The most *practical*, if not the most *scientific* classification is not based upon the pathological condition, but upon the appropriate treatment.

Thus we have :—Threatened ; Inevitable ; Incomplete ; Complete : while “Cervical,” “Tubal” and “Missed,” being much less common than the first four, will be dismissed with the first.

Cervical Abortion may be an ectopic cervical pregnancy, or the ovum may have been expelled from its normal position in utero into the cervical canal, and while the external os refuses to dilate and allow it to escape, the internal os is tending to close behind it. The condition is not hard to recognise, and the treatment consists in dilating or incising bilaterally the external os, expressing or curetting away the ovum, and suturing the incision, if incision were necessary, with one stitch on each side of the cervix. If the case was one of true “cervical pregnancy” the hæmorrhage may be free and obstinate, requiring one or more pluggings at twelve hour intervals in order to arrest it.

Tubal Abortion is in reality the termination of an “Interstitial” Tubal pregnancy, the ovum being implanted in the uterine end of the fallopian tube, its growth causing it to be displaced into the uterine cavity previous to its expulsion from the vagina. These cases cannot easily be distinguished from an ordinary abortion, and I am inclined to believe, from close examination of many decidua of the uterus, that they are more common than is generally supposed. Their treatment is that of an uterine abortion to be described later. Of course, there is a form of tubal abortion in which the ovum is expelled from the ampulla of the tube into the abdominal cavity, but these cases do not come within the scope of this short paper, and are only of interest here in so far as the differential diagnosis is concerned.

Missed Abortion is a very important condition, and the diagnosis is often uncertain. In it the ovum dies, but for some reason is retained in the uterus for weeks or months. There is usually to be obtained the history of an early pregnancy; but, following a hæmorrhage of variable intensity, or in some instances without any bleeding, the signs of pregnancy disappear. The uterus ceases to grow and may even diminish in size from absorption of liquor amnii, and the breasts may get smaller. Usually there is a hæmorrhage between the decidua and the ovum in these cases, but the blood clots *in situ* and may thus give rise to a *carneous mole* which may be retained *in utero* for a very long period. Several such cases have presented themselves to me for treatment, with a vague history of pregnancy dating back from a few months to a year or more; with irregular hæmorrhages which were supposed to be threatened abortion or metrorrhagia, and I have with great difficulty removed piecemeal under anæsthesia extremely tough masses of semi-organised blood-clots with remnants of an ovum.

Threatened Abortion will next occupy our attention. Here we have all the signs and symptoms of an early pregnancy, and the patient is bleeding from the uterine cavity. We may have to differentiate between it and an extra-uterine pregnancy which frequently closely simulates a threatened abortion. In the extra-uterine pregnancy the cervix is softened, the uterus is enlarged, there is increased pulsation in, and softening of, the lower uterine segment, and a decidua may be expelled from the uterus accompanied by hæmorrhage; but there is likely to be a unilateral tumour felt, a probable history of pain, and possibly of an old acute gonorrhœal endometritis, and a long period of sterility; these factors will argue in favour of ectopic gestation, and in this case portions of chorionic villi or of a foetus will *not* be found in the matter expelled from the uterus. In threatened abortion, hæmorrhage, a patulous os and some colicky pains will usually, in the absence of other signs, serve to clinch the diagnosis. The treatment, if the hæmorrhage be slight, will be rest in bed, and this for several days after all hæmorrhage and pain has ceased. Opium may be given to ease the pain, and half dram doses three times daily of Liq. Ext. of Hydrastis to allay uterine irritability and to arrest hæmorrhage. Styptol tablets (Knoll's) I find useful three to six per day. They tend to arrest the bleeding without, like ergot, causing the uterus to contract. Should this treatment prove successful, it would be well to confirm the fact a few weeks later by bi-manual examination, noting whether the size of the uterus has increased in proportion to the duration of pregnancy, lest we might be deceived into giving too favourable a prognosis in a case where a carneous mole might be in process of formation. If the case is one of vesicular or hydatidiform mole, it can hardly be diagnosed with certainty unless one or more vesicles are expelled from the os; then, should that occur, the sooner the uterus is emptied the safer for the patient; for although in themselves not always malignant in nature, they are not infrequently a precursor of fatal malignant growths. If, in spite of the treatment adopted, the symptoms do not abate, then the case becomes one of *Inevitable Abortion* and must no longer be treated “expectantly” but “actively.” Our aim must now be to empty the uterus as rapidly and as safely as possible. If the os will admit a finger or curette, remove the ovum at once. The finger is the safer, but it often necessitates the passing of the whole or most of the hand into the vagina and thus an anæsthetic is usually necessary. Rheinstadter's flushing curette, assisted by a bullet-forceps on the anterior lip of the cervix—traction on which brings the uterus near to the vulva and also removes the normal flexion of the uterus—is a safe and readily sterilized instrument in the hands of a competent operator, and personally I find it a more thorough and rapid

method of removing all decidual debris than the finger. I need hardly here refer to the necessity for the most scrupulous *surgical* cleanliness. The douches used will be Cyllin, Lysol, or Lysoform, one drachm to the pint of hot sterilized water; mercurial douches are contra-indicated.

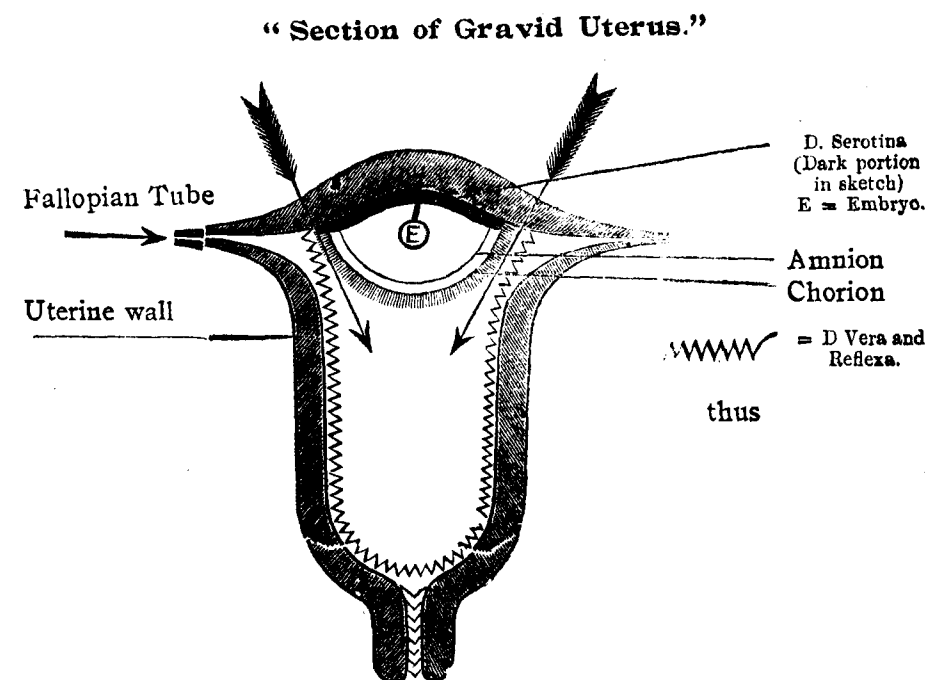
If the ovum is detached from the uterine wall, but is not readily removable, bi-manual compression of the uterus between two fingers in the anterior fornix and a hand upon the fundus will usually expel it, but if the os will not admit a finger or curette and the bleeding is troublesome, it only remains to dilate it with metal dilators under anaesthesia if possible, or to plug tightly the os and vagina with antiseptic gauze until the os dilates sufficiently. The former is much the safer and more surgical method. If the uterus shows signs of *infection* it must be emptied *at once* and irrigated with antiseptics.

An *Incomplete Abortion* is an important condition to diagnose, and if attention to detail is practised, this is easy. Its importance lies in the fact that if all of the ovum is not away, the unrecognised portion left in the uterus may give rise to irregular hæmorrhages, to defective involution, chronic endometritis, or even sepsis, and without exaggerating the ill effects, it is easy to see how the so-called "habit of aborting" might be induced.

If the nurse has kept all the dejecta, a close examination of it by the doctor will immediately reveal the state of affairs present; but unfortunately it is too often thrown away at once or lost during defarcation; and, moreover, I have more than once seen an incomplete ovum pronounced to be complete by practical and skilled medical men. We must keep before our mind, when examining an ovum, an exact picture of its anatomy at this early period of gestation; by this means we are not liable to go astray. At the 6th or 8th week—perhaps the commonest time for abortion to take place—the decidua is very thick in proportion to the size of the embryo and its membranes, and unless the whole of the decidua—Serotina, Vera and Reflexa—comes away, the abortion must be counted as incomplete. If we think for a moment of the usual mechanism by which the uterus attempts to expel the dead, but not necessarily *completely* detached ovum, it is easy to understand how a large portion of decidua is so readily left behind. At from 6 to 10 weeks there is, in the centre of the ovum, the little embryo floating in liquor amnii enclosed in the amniotic cavity. Outside of this is the chorion with its villi, which, in the latter weeks, are beginning to atrophy in one part while they hypertrophy in another—the placental site to be—here they are intimate with the Decidua Serotina. The remainder of the Decidua

—the union of Vera and Reflexa—is for all practical purposes to be described as one layer and it forms a cast of the uterine cavity excepting a small portion—the Decidua Serotina to which the foetus and membranes are firmly attached. Now if the embryo dies, or a hæmorrhage occurs between the uterine wall and the D. Serotina, we expect the patient to abort sooner or later. The uterus then contracts in order to expel its contents, and in many cases instead of stripping off the whole of the decidua, the latter is ruptured at the edge of the D. Serotina, and the rest of the ovum bursting through the internal os and operculum escapes, leaving behind it seven-eighths of the decidua. What has come away then is the embryo with its amnion and liq. amnii; the chorion and its fluffy villi, and a small patch—often no larger than a rupee—the D. Serotina or future placenta. In itself it appears complete at a glance, but the greater part of the decidua has remained behind; this latter may come away spontaneously later on, but oftentimes not, and it remains in the uterus with undesirable results.

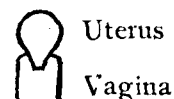
Perhaps the following rough diagrammatic sketch will better describe my point.



The arrows run through the point of rupture of the decidua. Of course it will be understood that the chorion and decidua are in contact, but are drawn thus merely for clearness.

Let us always then make a careful search among the blood-clots and other debris which has been kept by the nurse, for decidua, and if absent, diagnose incomplete abortion and treat the case appropriately with the blunt flushing curette.

Of course we have other signs and symptoms of incomplete abortion; the shape of the cervix is a valuable guide. If the ovum is not away it tends to bulge into the cervical canal and make it conical thus:—



Uterus

Vagina

while, if it has left the uterus, the internal os tends to close behind it while the external os may still be patulous, the cervix feeling bell-shaped to the examining finger thus:—



Hæmorrhage or pain continuing will also decide against the whole of the ovum having come away. If the abortion is a complete one the os will soon close down and the pain and hæmorrhage will cease. There is no treatment in such cases—if uncomplicated with sepsis—excepting rest in bed to allow of full normal involution. An incomplete abortion must be completed by active treatment; and if, as in the majority of cases, decidua alone remains, the flushing curette aided by a bullet forceps, will remove it rapidly and safely. Never treat an incomplete abortion “expectantly.”

The hæmorrhage from these cases is sometimes very alarming: nevertheless it is better to curette than to plug, and the shock is no greater if skilfully performed. Of course in an *urgent* case a *temporary* plug may be used while the douche and instruments are being sterilized, but this increases *tenfold* the probability of infection and it is but *seldom* necessary.

Hæmorrhage continuing after a *complete* abortion without apparent reason must always bring to our minds the possibility of the rare complication Deciduoma Maligna.

After a complete abortion, the patient should remain in bed for at least a week, because the uterus has to undergo restitution just as in the puerperium of a normal labour, but in a lesser degree. If this precaution be neglected they are prone to acquire chronic uterine inflammations or

displacements. In any case, remember that endometritis may have been the *cause* of the abortion and not the *result* of it, and so treat it appropriately and by that means avoid a recurrence.

*KALA-AZAR.

BY

T. SRINIVASA RAGHAVA CHARI.

Medical Practitioner, Madras.

MR. PRESIDENT AND GENTLEMEN:—

It is indeed a pleasurable task for me and I consider it an extreme honor by your asking me to read a paper upon a most important, though still-to-be-investigated subject—Kala-azar. When your Secretary came to me the other day and requested me to address you I, at once, without any hesitation, embraced the opportunity to do so; not because that I was confident of my ability to address you; not because that I was confident of my knowledge of the subject; not because that I am competent to enlighten you upon the same even to an iota; and not because that I made a special study of the subject concerned; but, that I never wanted to lose that golden opportunity of addressing you, my own classmen, that have and are to come out of an institution which I have had the unique fortune of studying in.

When your Secretary came and requested me, my heart throbbed with an excitement which no expression can describe because of the pleasure it has afforded me to address you all here under the presidency of a worthy soul at whose feet I have had the fortune of studying. Indeed the subject of to-day is of such a nature as no medical man has done full justice as yet. It is entirely a disease of the Tropical regions, which many eminent men like Dobson, Rogers, Manson, Leishman, Donovan, Marchand, James and Patton have tried and still try to investigate. Hence it will hardly be possible for me to describe fully the subject under consideration, and I know too well the slippery nature of my ground, but at the same time can confidently rely upon your charitable nature to overlook the many shortcomings in this short pamphlet of mine which is more a compilation than a composition, if not for anything else, but that it is from the pen of one of the alumni of our own institution.

Gentlemen, it would hardly be possible to indicate here all that has been accomplished of recent years, but I might point more especially to the definite installation of the mosquito as a leading factor in tropical

* A paper read before the annual meeting of the Royapuram Medical Students' Association held at the Muthialpat High School Hall, on 21st Feb. '08, and sent to *The Antiseptic* for publication.

pathology; the establishment of mosquito malaria theory; the discovery of an intimate connection of this insect with yellow fever; the military precision in which *Filaria Bancrofti* is inoculated by the mosquito; the connection between trypanosome in man with that up-to-date fashionable disease which makes the patient to forget all the miseries of life for days, nay for months—the sleeping sickness—the discovery of an unsuspected route by which *Ankylostomum duodenale* gets access to the human intestine; the germ in the relapsing fever and its transmitting agent; the discovery of a rat flea as a causative factor in plague, and, last but not least in importance, the discovery and the nature of the germ in oriental sore and Kala-azar.

Thus several diseases have been newly added to the category of tropical ailments, and although I am not in a position to chronicle many important therapeutical advances, yet I make bold to say that much has been added to our knowledge of preventive medicine and considerable scope has been given to our means of diagnosis.

Coming to the subject proper itself, Gentlemen, the disease has a life history of its own. It is called Tropical Splenomegaly because of its attack upon the spleen; Black Sickness and Kaladunkh because of the high rate of mortality; Sarkari and Saheb disease, because of the idea of the Garos that the Europeans brought this disease with them when they invaded the former; Burdwan and Dum Dum fever because of the epidemic nature of the disease prevalent in those districts as far back as 1870.

Definition:—The name is derived from Kala (Sanskrit)=black, and Azar (probably Assamese)=sickness. Hence Kala-azar is truly synonymous with black sickness. Kala-azar is an infective disease characterised by chronic relapsing and irregular course of fever, enlargement of spleen, and often of both the spleen and the liver, progressive emaciation, anæmia, dropsy of the lower extremities and rarely ascitis, frequently by hyperpigmentary changes of the skin and, most important of all, by the presence of Leishman-Donovan bodies in the spleen or liver-pulp, as also occasionally in the peripheral circulation. It will not be out of place and uninteresting to trace out the origin and growth of this fell disease in this short paper. As far back as 1869 the natives of Assam have recognised this disease and styled it as Kala-azar. The ravages of this disease upon the people actually decimated and depopulated many districts in the Garo hills. Our knowledge of the nature of this disease has been directed only in 1870, when it took the form of an epidemic in Assam and was supposed to have travelled from Rangpur. Some authorities think it might be possible that it was only a continuation of Burdwan fever which was raging during that period in some of the districts of Lower Bengal. We

have the authority of Rogers who says that the epidemic began almost simultaneously at Bengal, Kutta and Karaibari, two places fifty miles apart but in direct communication with Rangpur District. The epidemic advanced very slowly along the valley of the Brahmaputra, taking seven years to spread less than 100 miles. Following the lines of intercourse, it attacked first the larger stations and then spread to the smaller villages around. The introduction of this disease was invariably traced out to some one that is affected with this disease coming from an infected area to that place and thus conveying the poison. He supposes that the disease clings generally to a particular place for about six years, and it is not safe to reoccupy an infected house for many months or under a year as the people would say. Manson points out that it did not arise in the first instance in the interior of the Garo hills district, as some authors advanced, but appeared first at the foot of the hills and then spread between them along the patches of low, flat, terai country.

It will be interesting to know that on account of its deadliness especially in smaller villages Kala-azar as it swept onwards became a terror to the natives. Those suffering from this disease were turned out of the villages. Sometimes they were made unconscious with drink, taken into the jungle and burnt to death. Some villages cut off all communication with neighbouring villages for fear of infection. Others deserted their homes and even migrated to a different uninfected district. Apart from the epidemic nature of this disease, sporadic occurrences too were common in many places in India, and no connection was established between the epidemic and sporadic forms until the causative factor, *viz.*, Leishman-Donovan bodies were isolated and the theory established. When we come to the theory of the Leishman-Donovan bodies (or pyroplasmiasis as it is otherwise called) we are reminded that for many years eminent authors and disinterested investigators were holding various opinions about the nature of this disease. The majority of physicians regarded it as a bad form of malaria. Giles synonymised it with *Ankylostomiasis* on account of the patient's *fæces* containing large numbers of hookworm. Next comes Dobson who refuted this theory on the ground that persons suffering from other illnesses passed out almost the same percentage of hookworm, and for the matter of that even healthy persons passed out nearly the same percentage of hookworm in the *fæces*. Then came Rogers and Ross who put the disease down to a form of malaria, the former holding a malignant malarial view and the latter malaria with a secondary infection superadded. Bentley, though unsuccessfully, traced it out to Mediterranean fever. But Manson thought that this disease was one *sui generis* and gave a clue to the causative factor that there were

certain features common to trypanosomiasis and Kala-azar, and hence it might be a trypanosomia disease, on account of its peculiar clinical features, its great fatality, its mode of spread along the lines of communication, the almost constant absence of malarial parasites in the blood (of course when Kala-azar stands *per se*). At last came two saviours in the field of investigation—Leishman and Donovan. In 1903 Leishman published a paper—"On the possibility of the occurrence of the trypanosomiasis in India"—wherein he stated that he found certain bodies of a trypanosomal nature in the spleen-pulp of a soldier that was suffering from the so-called Dum-Dum fever and died of the same, though he could not explain the nature of these bodies. He carried his investigations and found trypanosomes of a similar nature during life in the blood of a rat that died of Nagana, and thus he surmised that the bodies found in the soldier above mentioned represented degenerated forms of trypanosomes. At the same period Donovan independently found similar bodies in the splenic pulp of patients that died of Kala-azar, then supposed to be chronic malaria. He found identical bodies in the splenic blood taken during life from a patient suffering from irregular fever and enlarged spleen, and whose peripheral blood showed no malarial parasites. Marchand independently found similar bodies in the spleen, bone-marrow and the liver of a patient with similar symptoms, and Manson, while carrying out his experiments on the lines of the above, corroborated it, and proved that these are not endocorpuseular parasites that belong to the genus Babesia. Then came the corroborations of many an ardent investigator like Christophers, Wright and Patton who held the theories of the parasites attacking the endothelial cells, of the parasites being identical with the oriental sore and of its extra corporeal development in a species of bug respectively. This leads us, Gentlemen, to the microscopic appearance of the Leishman-Donovan body stained with Romanowsky or Leishman method. It is a small round or oval parasite 2.5 u. to 3.5 u. in diameter. It contains two chromatin masses, a larger but lighter stained one called the macronucleus and a smaller rod shaped and more deeply stained one called the micronucleus. These chromatin masses are usually situated opposite to each other in small diameter of the parasite. These bodies have a clear outline and often show a clear unstained area—the vacuole. The parasites may be either free or contained in a matrix, or they may be seen in the protoplasm of leucocytes.

Incubation.—The period has not been clearly fixed; but it is supposed to be less than 10 days.

Symptoms.—The most important feature of this disease is that it commences with high fever which may be preceded by rigor and in some cases

with vomiting. This initial fever, intermittent in some cases, but most frequently remittent, may be very severe. It is most difficult to be diagnosed in its early stages from other fevers. The principal point is its long duration which shows alternate remissions and intermissions for many months at a stretch, even when the patients show a marked cachectic and anæmic condition, showing the great-resisting power of the patients. The recognition of the fever of Kala-azar in its early stage which usually begins with a high remittent form of pyrexia may often be accomplished by noting certain peculiarities in four-hour temperature charts. The most important of these is a marked daily double or triple rise of temperature often for several days together in the absence of any treatment by the more powerful diaphoretics and antipyretics than the ordinary ones. This double type is most frequently seen in the earlier periods of fever and the great importance of this type is that it has never been seen in typhoid fever for which the early stage of sporadic Kala-azar is so frequently mistaken. Another type which is rather characteristic of this fever is a low continued form of pyrexia, the temperature falling below 101° F. but not varying more than 2° F. in the 24 hours, a type which is much rarer in typhoid fever in which the pulse is also usually slower than in Kala-azar in proportion to the degree of fever. Moreover, even when the fever is high for long periods in Kala-azar there is a characteristic absence of severe distress or typhoid symptoms, the patients often say that they feel quite well and do not think that they have any fever when the thermometer actually registers 103 or 104° F. Once more when the remittent temperature falls, it commonly assumes a low intermittent type, rising to about a 100° F. every afternoon instead of running a subnormal or normal course as after typhoid fever—a feature that will often allow of the more serious Kala-azar being suspected at an early date before the cachectic stage has been reached. A consideration of these various types, will nearly always allow of the sporadic affection being suspected at an early date when persistent treatment is most likely of some avail. During the progress of this fever the spleen and liver become enlarged and decreased in a most remarkable manner according to the fluctuations of the fever. Then comes a period of apyrexia during which time the patient improves in his general condition to become once more a prey to a relapse of the fever. In this way spells of pyrexia and apyrexia become a potent recurring factor until it dwindles into a low persistent form of fever rarely exceeding 101 or 102° F. Rigor is rare and profuse sweatings are common during remissions and pains in the limbs simulating rheumatism are not rare. When the disease is thoroughly established emaciation

and anæmia become noticeable, and together with the enlargement of spleen and fever cause the patient to present a typical appearance. Œdema of the legs or circumscribed œdema, ascitis rarely, an extraordinary earthy grey color of the skin, dry, dull, and brittle hair, alopecia, petechial patches (especially in the axilla), epistaxis and bleeding from the gums are other features of this disease. One noticeable point of this disease is that in spite of the grownness of the situation, the tongue remains clean and the digestion and appetite unimpaired and the anæmia even in advanced cases is not marked, whereas there is a great and constant reduction of leucocytes. This condition of chronic fever, enlargement of spleen, anæmia and emaciation may continue for months or years until the patient very rarely recovers or more commonly is snatched away by the icy hand of Death in the form of intercurrent diseases as dysentery, Tuberculosis pneumonia or asthenia.

Diagnosis.—The above mentioned symptoms, namely, irregular fever with enlargement of liver and spleen, and a relative mono-nuclear leucocytosis suggests Kala-azar, but until the Leishman-Donovan body is found in the blood or tissue under the microscope it would be rash to pronounce a positive diagnosis of Kala-azar and in fact it is the only indication of this disease.

Prognosis.—The rate of mortality is very high ranging from 75 to 98 per cent.

Complications.—The most constant complication is dysentery; others are pneumonia, cancrum oris, meningitis, purpura, cerebral hæmorrhage, pulmonary tuberculosis and rarely pericarditis and general septic infection. Hæmorrhage deserves special mention among the complications, reduced coagulability having been found in many cases, while bleeding from sloughing ulcers or from the stomach or bowel has also been seen, in addition to several cases of bleeding into the brain or its membranes.

Kala-azar, then, is the epidemic manifestation of a fever endemic in extensive areas of India which has spread slowly for three years up the Assam Valley as a wave of greatly increased mortality, dying out largely as it passes on, after causing a decrease in the population and falling out of cultivation of much land in the affected tracts, travelling along lines of communication, characterised by fever of an alternating, remittent and intermittent type, commonly mistaken for typhoid fever in its early remittent stage, but rapidly leading to a cachectic condition, with a great enlargement of spleen and later of the liver and extreme wasting, the fever lasting from a few months to several years, and commonly terminating by some complicating

affection, the mortality being from 98 p. c. at the height of the epidemic, down to 75 p. c. at its end.

Treatment.—Although much has been done to elucidate the pathology of this disease, unfortunately the treatment has made no corresponding progress and is still in a most unsatisfactory state. In Madras 98 p.c. of the cases die, and almost every case is believed to die. Major Rogers of Calcutta who had a wide experience in this disease, in his Millroy lectures delivered before the Royal College of Physicians in London last year, advocates the use of large doses of quinine for many months, if not to eradicate the disease, at least to reduce the high remittent fever and bring it down to a low level into a comparatively harmless, low intermittent fever, when the use of the same drug in moderate doses nearly effects a cure. He gives 60 or 90 grs. of quinine daily, and when the fever is reduced to a low intermittent type, 20 grs. daily for many months. He says he found no untoward effects of this drug among his patients. Dr. Price of the Tea Estates in Assam having followed the footsteps of Dr. Rogers and successfully carried out his plan of treatment in his estate in genuine cases of Kala-azar strongly endorses the latter's opinion. Thymol was advocated by some. X-rays for the reduction of the spleen was tried by some observers and proved ineffectual. Bone-marrow tabloids to repair the blood deterioration is also of considerable value. Arsenic is worthy of trial and some have found atoxyl injection to give temporary good effects. Major Rogers says that in view of the chronicity of the disease and the occasional spontaneous recovery from an apparently hopeless state, much caution is required in making deductions in any line of treatment, but the extraordinary cures which do occur, encourage the hope that a better treatment than the Quinine one will be found to rescue these unfortunates from the lingering death which still awaits the great majority of them.

Prophylaxis.—The result of an effort to destroy the bed bugs in the houses infected with Kala-azar is at any rate, most encouraging according to Rogers, and in view of Capt. Patton having now proved that the parasite can develop into the flagellate stage in the stomach of bed-bugs fed on Kala-azar patients and kept at the right temperature, disinfection, like burning sulphur in bed rooms, washing the bed with strong carbolic lotion, boiling the linen of the patients and such other precautionary and preventive methods, have been advocated by the same authority. Moreover, the success of the measures based on the theory that it was essentially a house disease is readily accounted for by the bug theory of infection which has now received such strong experimental support.

Gentlemen, I have now completed my task. Although I have necessarily endeavoured to do full justice to the numerous observers who had

added so much to our knowledge, yet, in concluding, I wish to emphasise the fact that the great advances made during the last few years in our knowledge of the most terrible of tropical diseases afford a pleasing instance of the recent increased interest in affections of our own country leading to combined work in different places by a number of medical men, some happily of our own class—I mean the Hospital Assistants.

Cases and Comments.

Treatment of Pemphigus (A Suggestion).

BY

J. V. RAMASWAMY NAIDU, L. M. & S.

Medical Practitioner, Mint Street, Madras.

Pemphigus is a disease so characteristic in appearance that there is scarcely any difficulty in its recognition, but the same cannot be said about its treatment.

A general practitioner sometimes finds a case or two in a family under his medical care, tries one remedy after another, and finds them of no service; he then goes through some of the books in his little library, is reminded of one or two methods that he had not tried, and gives them their turn. Yet nothing but disappointment is the result; he consults his friends, gives their suggestions a trial, but with no better success.

I was once in this plight and thought of Calcium Chloride. If Calcium Chloride increases the coagulability of the blood, it ought to prevent undue osmosis. The characteristic blebs should cease to appear.

I resolved to try it, and administered *Liq. Calcii Chloridum*. I was not disappointed this time. All my little patients got better.

In a disease of indefinite duration like this one should not be too sure of the efficacy of a drug, but the fact that though my patients were affected on different dates and the duration of their illness varied; they all got better simultaneously—is remarkable in favour of the efficacy of Calcium Chloride in this disease.

My excuse for encroaching on your space and the time of your readers is that I consider *Calcii Chloridum* is worthy of further trial and that none of the books, pamphlets and notes that I have gone through mention this drug as useful in Pemphigus.

Pemphigus is not a disease of daily occurrence; one comes across a case but now and then.

No single individual could be expected to meet sufficiently large number of cases for satisfactory investigation.

I shall be gratified if these few lines would induce such of your readers as have an opportunity, to try this drug and communicate their result to your journal.

The remedy is a harmless one; the only contraindication is Kidney disease. It is said that Calcium Chloride given in very large doses does not increase the coagulability of blood but decreases it, while others hold that under very large doses, the coagulability of blood increases for a day or two and then diminishes. Moderate doses will do for our present purpose.

Our Contemporaries.

MEDICINE.

"Brain Fag."

BY

ERNEST CLARKE, M.D., B.S., F.R.C.S.

Surgeon to the Central London Ophthalmic Hospital; Consulting Ophthalmic Surgeon to the Miller Hospital.

Although this term is not to be found in any medical dictionary, nor is it recognised by that name by the College of Physicians, it is constantly used and is understood by those using it to be akin to neurasthenia, probably "cerebral neurasthenia."

In Webster's Dictionary brain fag is defined as "a hypochondriacal condition verging upon insanity occurring in those whose brains have been unduly taxed."

One can conceive that there might be such a thing as pure fatigue of the brain in one using the *brain solely* to excess, such as a blindfold chess player playing six or twelve games at once, but the ordinary brain worker who is said to be suffering from "brain fag" has most probably been using his eyes at the same time.

I will begin, then, by stating that I fully believe, from some considerable experience of these cases, that "brain fag" as understood does *not* exist, and that this variety of neurasthenia is consequent on some form of reflex irritation or nerve waste (chiefly the latter), and that eye

strain is the real cause or the chief cause (when others exist) in a very large proportion of cases.

SAVILL says that the favourite age for the onset of neurasthenia is between 25 and 35. KRAFFT-EBING says of neurasthenics, 77 per cent. were between the ages of 20 and 49. I have shown elsewhere that the majority of cases of *eye strain* occur between 20 and 45.

Again, SAVILL says that those suffering from neurasthenia are mostly engaged in sedentary indoor occupations. He mentions engine-fitters at lathe work, post office clerks, bank clerks, etc. KRAFFT-EBING says that the majority of his patients were engaged in indoor close work—they were bank clerks, telegraph clerks, journalists, teachers, etc. It is quite possible that most of these were working with closed windows, and that part of their trouble was want of fresh air and exercise, but surely everything points to the probability of eye strain being the chief cause.

GOULD, of Philadelphia, shows in a manner that seems beyond criticism in his most fascinating Biographic Clinics, that in all probability some of our greatest thinkers, such as Carlyle, Darwin, and Huxley, were suffering from eye strain, and that the "brain fag," nervous breakdowns, and other forms of ill health were due to an error of refraction.

It is interesting to note from the diaries or biographies of these men that the only improvement they obtained and the only cessation from their nerve troubles came with complete *cessation* from *eye work* NOT *brain work*. A long country walk on a dark night, a ramble over the Scotch hills, meant, of course, fresh air and exercise, but it also meant cessation from the eye strain they had by their work provoked, and in such brain workers it would not mean cessation from brain work, for with them brain work only ceased with sleep.

Now, you may well ask, if this "brain fag" or neurasthenia is due to the eyes, why are not the eyes more often suspected?

The first answer to this is that the patients themselves have, as a rule, perfectly good vision, and are very often most indignant at the suggestion that their eyes are at fault. The reason for this is, that the error is invariably quite small in amount, often only an astigmatism of a quarter of a dioptré, and this error, which lies in the shape of the cornea, is corrected (unconsciously) by an inverse astigmatism of the lens; and remember, it is not the *error* that is the cause of the eye strain, but the *correction* of that error.

This means that the eye is never at rest, and when the patient starts near work he starts with a deficit, with an already fatigued eye.

This error can only be revealed under a cycloplegic, because naturally this small error of the cornea is only revealed when the ciliary muscle is paralysed, and this leads on to the second answer to the above question.

We will suppose the medical man to be "up-to-date," and, suspecting the eyes, he sends the patient to a specialist, who reports that the eyes are *practically* normal. If he did not use a cycloplegic (atropine for all under 25, and homatropine for those between 25 and 50) his report is worthless.

He has missed by so doing the small astigmatic error which has led to the nerve breakdown, brain fag, or whatever you like to call it—the name does not matter. This is most serious for the patient, because the finding and correction of the error means for him a new life. He was suffering from insomnia, headaches, general slackness, no desire to live, or perhaps one of many other so-called "functional" nerve disorders; and with a pair of suitable glasses, worn always, you act the part of a fairy and remove with one swoop all his troubles. This is no romance or exaggerated statement; it is the daily experience of those who *carefully* correct all errors of refraction.

You may naturally ask: Are any eyes normal? and if not, ought not everyone to be corrected by glasses? Of course the answer is that you need only treat *symptoms*.

It is quite possible that no one's intestines really act properly, and no one takes quite the right diet for his particular constitution, but you do not resort to drugs unless symptoms call for it.

The man or woman who leads a life of ease and exercise, or the one who has a well-balanced nervous system, can perhaps easily stand the small drain that in his or her case is going on from uncorrected astigmatism, and no symptoms call for treatment.

Please do not misunderstand me. I am not preaching that all ailments are due to eye strain, but what I assert is that the numberless functional nerve disorders, under which we include brain fag, neurasthenia, insomnia, headaches, etc., are, in a large number of cases, due to eye strain; and before any treatment is commenced the eyes ought to be properly and carefully eliminated. Some other reflex irritation, such as decayed teeth, may be present; there may be excess of uric acid in the system, or a great worry or grief has fallen on the patient; these alone, perhaps, would not be sufficient to provoke a serious nerve breakdown, but coupled with eye strain they may be most disastrous.

In conclusion, I would refer you to a former lecture of mine dealing with this subject, wherein I explain more fully the *manner* in which the nerve waste of eye strain affects the patient.—*The Polyclinic*.

Chlorosis a Specific Disease and Iron its Specific Cure.

F. W. WARFWINGE (*Munchener m. Wchnschr.*, 1907, No. 51, p. 2542), director of the largest hospital in Stockholm, in the 24 years 1879 to 1903, had 683 cases of chlorosis under his observation, and from his extensive experience formulates the following conclusions: Chlorosis should not be included in the indefinite term anæmia, but considered as an absolutely specific disease. It is marked by its spontaneous occurrence without any recognizable cause. Etiologically, one must admit its complete independence from any of the factors in anæmia; from want of good food, and other anti-hygienic conditions; from impaired digestion; from disorders of the nervous system; from heredity, and allied conditions; there is no reason to connect chlorosis with infantile conditions of the circulatory system or genital organs. The type of the disease is most impressive; its essential entity is obscure, but must consist in some alteration in the blood in which deficient new formation of the red-blood corpuscles prevails to some extent, but in which the chief point is that its own constitution is so changed that it is unable to assimilate in sufficient quantity the hæmoglobin so indispensable for its proper function. Several circumstances support the idea that the impediment to such assimilation is a poison which diminishes the catalytic property of the protoplasm of the red corpuscles that is responsible for the formation of hæmoglobin out of the hæmatogenous materials of the food. Many circumstances suggest that chlorosis is an infectious disease accompanied by the formation of toxic material (its typical, sometimes mildly feverish course, its inclination to relapse, its epidemic occurrence, and so forth). In regard to treatment dietetic measures may act as adjuvants, but are in themselves useless. Iron alone has a beneficial action, and that both brilliantly and specifically effective. That its effect is not manifested locally, in the alimentary canal, is proved that when administered hypodermically, even in doses of about $\frac{1}{2}$ of the ordinary amount, its action is just as rapid and sure. The action of iron preparations presupposes, then, absorption. In chlorosis, the specific action of inorganic preparations of iron is the same as that of organic ones, which, like albuminate of iron, react to the ordinary tests for the metal. Such compounds as ferrocyanide of potash, on the one hand, and hæmoglobin, hæmatin, hæmol, etc., on the other, in which the metal is so fixed that they give no reaction to the tests, are absolutely ineffectual. Chlorosis for its cure demands inorganic or organic

preparations of iron, which can be more or less completely decomposed in the blood and other juices of the system, so that (as against chemical reagents) the metal can exercise its full effect. One must assume, for many reasons, that the therapeutic iron is not assimilated, does not penetrate the hæmoglobin molecule, and so supply the deficiency. Experiments made on animals to prove the contrary are very contradictory; moreover, the anæmia induced artificially in the animals is not chlorosis. If iron in drug form were assimilated, its use in chlorosis might be abandoned, for the iron contained in the food would surely be much more adapted to form hæmoglobin. Nor can one suppose that the iron acts by stimulating the blood-forming cells of the bony marrow, since no pathological lesions have ever been discovered in the marrow of chlorotic patients. One may, therefore, suppose that the process of formation of hæmoglobin, impeded in chlorosis, is greatly promoted by the ions of iron set free by the decomposition of the iron drugs in the juices of the organism, inasmuch as those ions as catalysators accelerate the destruction of the poisonous matter which probably exists in the blood in chlorosis and hinders the formation of hæmoglobin, and this in proportion to the concentration of the ions. For the quick and sure cure of chlorosis, large doses of iron are essential, especially as much of that ingested is not absorbed. The treatment must be continued until the blood is absolutely normal, or for at least six weeks. The author gives curves of the counts of red corpuscles and of the amount of hæmoglobin in various forms of anæmia, and especially in chlorosis, a number illustrating the effects of various preparations of iron, and also full consideration to the literature of chlorosis and its treatment.—*The Journal of Obstetrics and Gynecology*.

The Differentiation of Chorea Minor and Tic.

CHOREA MINOR.

1. General nutrition suffers early in chorea—the patient growing pale and anæmic, and he shows early loss of weight.
2. Expression, when face is quiet, is vacant, sullen and often stupid.
3. Disposition is, as a rule, morose and depressed, but it is often characterized by great irritability.

TIC.

1. Tic has no effect on general nutrition and this is usually good. Weight is not affected.
2. Expression is, as a rule, quick and vivacious.
3. Disposition is usually lively and is frequently childlike in tic.

4. Attention not necessarily but usually is somewhat diminished in chorea.

5. A heart murmur is rarely absent throughout the course of the disease, and, unless previously present, is due to the choreic process.

6. The respiratory function is often disturbed in chorea, the respiration becoming so unequal and irregular that a normal respiratory excursion rarely occurs and the expiratory phase is often *explosive*.

7. If the muscles of articulation are involved in chorea, speech is often indistinct, difficult, and momentarily impossible. Coprolalia and echolalia are never present in chorea.

8. Choreic movements are never confined to one part of the body throughout the course of the disease, though they usually *begin* in arm, face, or leg, and then rapidly extend to other parts; they may be one-sided in the beginning, but they usually become general.

9. Choreic movements are never confined to synergically associated muscle groups; they are indefinite, vary in intensity, and frequently occur in individual muscles.

10. Voluntary movements with the affected parts show a constant though variable degree of incoordination.

11. Choreic movements are involuntary, and these movements show more or less incoordination.

4. Attention is constantly diminished in tic.

5. A heart murmur, unless previously present, is never found in tic, and it is never due to the tic process.

6. The respiratory function rarely shows disturbance in tic, and never similar to that in chorea.

7. The muscles of articulation are never similarly involved in tic, and coprolalia and echolalia are often present.

8. Tic movements are usually confined to a single part of the body and they rarely become general.

9. Tic movements are invariably confined to synergically associated muscle groups; they are definite and occur repeatedly with varying intensity in the same muscle groups, but never in individual muscles.

10. Voluntary movements in tic are never incoordinated.

11. Tic movements, as a rule, are not consciously, but subconsciously voluntary, and they are never incoordinated.

12. Choreic movements are not lessened, but are usually made worse by any voluntary effort to control them.

13. A choreic involuntary and incoordinate movement is a *purposeless* movement and was never *imitative*.

14. Any voluntary movement exaggerates the choreic movements.

15. Choreic movements are increased in emotional states.

16. Choreic movements are always exaggerated when the patient is in the presence of others and less when he is alone.

17. Marked associated movements are always present in chorea.

18. Choreic movements are always unpleasant to the patient and are never accompanied by feelings of satisfaction.

19. In chorea minor frequently apparent but rarely actual weakness in certain muscle groups occur.

20. Choreic movements cannot be imitated.

21. Chorea minor, with or without treatment, tends to complete recovery within from two to six months.

22. Chorea minor is a disease.

12. Tic movements are lessened and may be entirely controlled for a variable period of time by voluntary effort—the oftener the effort, the greater the control.

13. A tic movement in the beginning *was* either a *purposeful* or an *imitative* movement.

14. Any voluntary movement usually lessens the tic movements.

15. Tic movements are usually lessened in emotional states.

16. Tic movements are usually lessened when the patient is in the presence of others and aggravated when he is alone.

17. Marked associated movements are never present in tic.

18. When an inhibited tic movement gives way to the desire to tic, the ensuing tic movement is accompanied by feelings of satisfaction and pleasure to the patient.

19. Neither apparent nor actual muscle weakness is ever due to tic.

20. Tic movements may be readily imitated.

21. Tic, unrecognized and unaided, never tends to recovery, but naturally to perpetuate itself, and it may last a lifetime.

22. Tic is a habit.—*The Canada Lancet*.

Asthma.—Observations on 300 cases.

EMMETT SMITH (*Medical Record*, June 29th, 1907) defines asthma as "a spasmodic affection of the involuntary muscular fibres of the small bronchial tubes, caused by a reflex irritation of the pneumogastric nerve, which contracts these muscular fibres and gives rise to dyspnoea of a paroxysmal character. This definition will harmonise the different

theories on this subject, explain the action of various remedies and conditions, and prove useful in the clinical test and in the permanent cure of this disease." He claims that the theory that true asthma is due to a vascular distension of the bronchial mucosa does not appear to harmonise with the classical physiological experiments or to prove true in the clinical tests; and that if turgescence of the bronchial mucosa was the cause of the asthma, then the use of atropin would be non-effective. While it is true that in true asthma there is vasomotor disturbance, it is not the vasomotor distension in the bronchial mucosa, which the asthma causes, but to the pressure on the asthmato-genous points (BRUGELMANN) in the nasal fossæ. This acts on the pneumogastric nerve, and explains the various phenomena of true asthma. This pressure irritation may be on the nasal septum, or rarely there may be no occlusion of the nares, and it may be due to a closed empyema of the ethmoid cells or sinusitis. That this is the true explanation of asthma is proved by relieving the pressure on these areas, which gives almost instant relief to the spasm. The relief is made permanent by such treatment as will prevent such pressure. When cold is applied to the surface of the body in any way vaso-constriction of the skin results, with intense congestion, and increase of the nasal pressure, which aggravates the asthma. If the skin circulation is normal, the effect of inhaling cold dry air is to contract the nasal mucous membrane and relieve the dyspnoea. Moist heat to the skin-surface relieves the nasal engorgement, cold damp days aggravate, while dry weather gives temporary relief in some cases. The action of iodine when favourable is due to its well-known action in reducing glandular (bronchial) swelling and pressure, and to its specific action on the nasal tissues. Benefit from the use of vaso-dilators comes from their action in equalising the entire vascular system and relieving the pressure on the asthmato-genous areas. Adrenalin acts only on local vaso-constriction, and gives relief in proportion to the diminution in the nasal turgescence. Atropin diminishes the reflex excitability of the pneumo-gastric nerve. It not only gives temporary relief in asthma, but is useful in other conditions controlled by the vagus nerve. During the paroxysm as much as an eighth of a grain is given in 24 hours. The temporary relief obtained from the use of inhalations is due to the local vaso-constriction on the asthmato-genous areas. If favourable results ensue from treating asthma as an uric acid condition, the author considers that these are due to the giving up of sweets and other articles in the anti-uric acid diet list, as these have the tendency to engorge the nasal tissues and aggravate the asthma. In the so-called peptic asthma, the stomach disturbance is a secondary cause. These peptic cases do not act directly through the vagus nerve,

but by engorging the nasal areas. It can be proved that the uric acid condition and the stomach disturbance may be allowed to exist, and yet there will be no asthma if the nasal pressure is relieved. In any case of true asthma, when the nasal treatment has been to relieve air pressure on the asthmato-genous areas, the author has found that articles of diet may be taken with no bad effect which formerly were certain to cause asthma. He now gives no special diet list, and after the treatment has been satisfactorily carried out, the eating of different articles of food and the doing of things that formerly brought on an attack will now have no injurious effects.—*The Australasian Medical Gazette*.

The Abdominal Belt in Whooping Cough.

KILMER, in the *Archives of Pediatrics*, states that 95 per cent of cases of whooping cough can be benefited by the application of an abdominal belt made of linen, with a strip of silk elastic webbing two inches wide inserted in either side. The belt should be about three inches shorter than the circumference of the body at the umbilicus, and is laced at the back. The width is four or five inches for infants, up to eight inches for children. The tightness of the belt is adjusted to the degree of coughing and vomiting. When first applied the constriction should be slight; but if the coughing and vomiting are not sufficiently controlled, the belt is tightened.—*The Doctor*.

The Favourable Influence of Small Doses of Arsenic And Bichloride of Mercury in Three Cases of Graves' Disease.

BY

LEONARD WEBER, M. D., NEW YORK.

Among the twenty cases of Graves' disease of which I have records there is but one male, all the others are women between twenty and forty years old, none of whom were quite normal as to functional activity of the central nervous system. Only one acute case concerning a single woman of twenty-five terminated fatally by excessive hyperthyroidism and final cardiac failure. Surgical procedures, such as KOCHER's recent statistics have shown to be of great value in severer forms of ex-ophthalmic goitre, have not been done in any of my cases.

From Graves' and Basedow's time to near the end of the last century the disease was considered to be a vasomotor neurosis; rest, baths, change of scene, good nursing, the galvanic current to cervical sympathetic, and the administration of phosphate of sodium, 1 and 2 drams three times a

day, according to Professor KOCHER'S own recommendation, were our main reliance. About 1895 MOEBIUS came forward and said that Graves' disease was hyperthyroidism, that the perverted and excessive function of the gland was the cause of the entire symptom-complex. His definition has been accepted, I believe, by the great majority of clinicians and practitioners, so that it is our task now to bring back the thyroid to normal function by medical means, or, if unsuccessful in such attempts, to have the glands removed in severe cases.

A sister of the young woman mentioned above who died of acute Graves' in about a year, came under my care in 1901. She was then thirty-one years old, married, I-para, and presented both the cardinal symptoms of Graves' and various other signs of acute intoxication, such as marked tremor, sweats, frequent diarrhoea, and later on enlargement of the liver and spleen. The usual plan of treatment being without avail and thyroidectomy having been refused, it occurred to me to try arsenic and corrosive sublimate for their antitoxic effects. The patient was ordered arsenic, gr. $\frac{1}{80}$, and sublimate, gr. $\frac{1}{80}$, in tablet form to be taken t.i.d.; and about one month after the introduction of these remedies she showed signs of improvement in all the symptoms. She continued to take them with but little interruption for nearly three years, recovered entirely, and has not been in need of any treatment for the last two years. In two other cases which have come under my care since 1903 I have had equally good results from the same remedies; however, they were not severe. I shall be gratified if this short communication will induce other practitioners to try the treatment in suitable cases.—*The Medical Times and Hospital Gazette*.

SURGERY.

The Prognosis and Treatment of Burns.

BY

MILTON P. CREEL, M. B.

Surgeon, L. & N. Railway; Member, American Medical Association; Ex-Vice-President, Kentucky State Medical Association; Referee for Muhlenberg County for the Kentucky State Board of Health; Secretary, Muhlenberg County Board of Health; Member, United States Board Pension Examiners; Surgeon, I. C. R., R., Etc., Central City, Ky.

There is, I am persuaded, much misapprehension in the minds of a great many physicians and surgeons regarding the prognosis of burns. This is due to the fact that the text-books on surgery are defective on this point. These works, as a rule, are full and accurate on all other facts

pertaining to burns, but in many great surgical treatises no mention is made of the prognosis. This, to my mind, is a serious omission, and to it I can attribute some lamentable errors of prognosis.

It is a fact never to be lost sight of that the danger that comes to a patient from a burn is not in direct proportion to its depth, or to the tissue-destruction. It is the amount of surface injured rather than any other point, unless, of course, some vital organ is irreparably affected by the heat, that renders burns dangerous. By this is meant that a slight burn affecting a large area of the body is more dangerous than a severe one which destroys a small part of the economy. A burn which is so slight that it would produce but little inconvenience, if only a small area was affected, will prove mortal if a considerable portion of the body is so attacked. A patient may suffer a burn that will destroy a good portion of his arm, and recover—yet, if lightly burned on the chest or abdomen, he will be hopeless, if the area is large. The extent of burned area is a vital point in the prognosis of burns. It has been reduced to very accurate principles by correct observers. It is said, and this is borne out by the most accurate European and American observers, that if one-seventh of the body is burned, the prognosis is grave—if more than this is affected, the result is uniformly fatal. This is a rule of prognosis that is held in England and on the continent of Europe, and in my experience in twenty-five years' practice I have never known one exception to it. I have always, in my consultations and my private practice, found this an invariable rule of prognosis. It is, I believe, the wise course to advise the friends or parents of the gravity of what seems very slight burns. In other words, we must instruct them that danger lurks in the extent of the surface burned. This will save many physicians from the deep mortification that must come to one who misleads his patient or his friends by giving voice to a false prognosis.

In the treatment of burns, one of the first demands is to relieve the shock. Shock is responsible for many deaths in burns. In fact, many patients succumb to the shock. When the patient is seen in the article of shock, or is threatened with it, he should be put in a bath of 105° F., and an injection in the subcutaneous tissue should be made of normal salt solution. He should have an hypodermic injection of strychnine, and hot brandy and milk and water should be administered per os if the patient is able to take them. We should keep the patient well covered, and see that none of his strength is wasted in supporting his body, or in any other way. The application to the burned surface of that old familiar dressing-lint soaked in a mixture composed of equal parts of linseed oil and lime water, has done good

surface to many physicians in all the years that it has been known, but that we have a better way of answering the demands in a case of this kind there is, to my mind, no doubt. This old-style dressing is most disgusting in its odor; in fact, it is highly repulsive. Again, oily dressings absorb nothing, and they mix with none of the discharges of the burned surface, and, therefore, are open to objections. They may, I think, greatly aid in the septic infection, in the manner outlined, and this is to be as much avoided as possible, because I think that the self-infection is one of the principal sources of danger, and to it we can logically look for an explanation of the large percentage of mortality.

The dressing which I now rely upon consists in the application of absorbent lint which has been soaked in a saturated solution of boric acid. I apply this wet, being sure, however, never to apply the dressing which is cold. I use a tepid solution of boric acid. Just here let me say that before applying this dressing I open the blisters, drain off the liquid, and sprinkle some boric acid on the exposed surface. The lint is put entirely over the burned surface, and over this is put covering made of wider cloths that can be easily removed. I do not approve of the removal of the dressing so long as the patient is comfortable and the temperature normal. If there is considerable discharge from the burned area the lint can be covered with boric acid from time to time. This exerts a proper influence on the burn. The outer cloth advised can be removed without trouble, and this will aid in removing much odor and discharge.

When a burn affects the hand or foot it will often require much ingenuity to prevent deformity. Very often it is a good idea to keep the hand in a splint, and to watch it very carefully in order to avoid deformities that very often ensue.

In the treatment of burns I have often called the attention of physicians I saw in consultations to the fact that anæmia was slowly developing. This is the outcome of lack of feeding. These patients are to be fed adequately and systematically. If given his own way one of these patients—one with a considerable burn—will consume an amount of food altogether inadequate to the needs of the system. If this is necessary, I resort to forced feeding. It is a good idea to give concentrated foods, and to get our patient to eat whether he feels so disposed or not. I am morally sure the outlet of death from burns would be less if nutrition was maintained better than it is often done. I find it highly important to begin to look after this from my first visit.—*The Medical Brief.*

Epithelioma of the Penis—Analysis of 100 Cases.

From an exhaustive study of 100 unselected cases of epithelioma of the penis, most of which were taken from the records of the Massachusetts General Hospital during 33 years, from January, 1872, to January, 1905, Dr. J. Dellinger Barney draws the following conclusions:

1. Epithelioma is practically the only kind of cancer attacking the penis, and its frequency forms only from 1 per cent. to 3 per cent. of all cancers.
 2. It occurs most frequently during the fifth, sixth and seventh decades of life.
 3. Phimosis is pre-eminently the most important of its exciting causes, occurring in over 83 per cent of the cases. Circumcision, therefore, cannot be too strongly advised, especially after middle life, in all cases where the prepuce cannot be easily and completely retracted. Syphilis and trauma are to be considered next in importance from an ætiological standpoint.
 4. Most cases seek relief during the first and second years of the disease, but it is not unusual to see cases of from five to fifteen years' duration.
 5. Pain occurs in 43.5 per cent. of all cases. It is rarely severe, and usually occurs late in the disease.
 6. Enlargement of the inguinal glands occurs in over 75 per cent. of all cases. In 60 per cent, these glands are cancerous. The rest show simple hyperplasia from septic absorption. Glandular involvement may occur early, but from my study of these cases I am inclined to regard it rather as of late occurrence. Inguinal metastases cause death sooner or later. If well advanced, attempts at their removal are to be considered only as "surgical vandalism."
 7. Invasion of the vital organs occurs in over 15 per cent. of all cases. It may occur without involving the inguinal glands.
 8. Recurrence takes place up to one year after operation in over 39 per cent. of the cases, up to two years in over 19 per cent., up to three years in over 16 per cent., up to four years in over 6 per cent., and, most notable of all, it occurs over five years after operation in over 12 per cent. of cases.
- Its site depends largely upon the original operation performed, and will be local where only palliative operations have been done. It may occur several times.

9. The operative mortality is 1 per cent. This case died of sepsis, a misfortune which might occur in any operation.
10. The gross mortality is 32 per cent. That of the primary cases is 29 per cent. of the recurrent cases 38.5 per cent.
11. Thirty-eight per cent. of all cases are cured; of these primary cases from 36.5 per cent., the recurrent cases 42 per cent.
12. Early amputation of the penis at the pubes, with thorough dissection of the groins, is the operation of choice. If taken in the earliest stages, however, amputation alone may effect a cure. The operations of splitting the scrotum and transplanting the urethra into the perineum, or of total emasculation, offer no greater hope of cure.
13. The length of life from *time of onset* in primary cases is three years and four months; in recurrent cases it is eight years and three months.
The length of life after *final operation* in primary cases is 24 months; in recurrent cases four years and two months.
Cases may live for over 11 years after the onset of the disease without operation.
14. Sexual power is not necessarily destroyed by amputation of the penis.
15. Melancholia (in this country, at any rate) rarely, if ever, follows the loss of the organ.
16. Amputation, even close to the pubes, does not necessarily cause any disturbance of micturition.
17. The patient will be confined to the hospital for about 14 days after the radical operation.—*The Medical Review of Reviews*.

Intestinal Obstruction from a Swab left in the Abdomen.

G.T. GIFFORD, M.D. (*Brit. Med. Jour.* Oct. 19, p. 1043.)—The writer was asked by a practitioner to see a woman suffering from symptoms of intestinal obstruction. She had walked to his surgery on the previous day, complaining of pain in the lower abdomen and constipation. Three months previously she had undergone an abdominal operation for an extrauterine fibroid. Since the operation she had felt well until within the last 48 hours. Nothing definite was to be made out by palpation excepting spasmodic contraction of the abdominal muscles with general tenderness. This condition with much pain of a straining character and incessant vomiting, necessitated immediate laparotomy.

Distended and inflamed coils of small intestine presented, and a mass was found impacted in the middle of the ileum. A longitudinal incision was made into the bowel, the mass was removed, and recovery was uneventful.

The mass was found to be a surgical swab of wool surrounded by gauze. It evidently had been left in the abdominal cavity at the previous operation, and ulcerated through the intestinal wall. It had evidently gained entrance to the bowel several feet above the site of impaction, where an inflamed portion of bowel was adherent to the posterior abdominal wall.—*The Medical Review*.

How to Remove a Plaster Bandage.

The removal of a plaster-of-Paris dressing is greatly facilitated by first scraping a groove with a knife, and then dropping along it a solution of caustic soda. In a few minutes the plaster becomes pulpy along this line, and the bandage can then easily be cut through. If two lateral grooves be made, instead of one, a lid can be cut out of the bandage, the leg can be lifted up for the necessary inspection and returned, the lid being reapplied and retained with a roller bandage. In this way the plaster dressing is not cracked, and the limb is not jolted in the efforts to remove the bandage. By this method, also, it is a very easy matter to cut any fenestra that may be needed.—*Massachusetts Medical Journal*.

Pure Carbolic in the Treatment of Boils.

BY

J. LINDSAY, M. D.

THE treatment of the common boil may appear to be a very trivial matter to the medical practitioner, but the small details of the various local measures employed, either in the relief of pain or in cutting short its progress, are matters of no small importance to the unhappy sufferer. It is very often the case that a patient may be afflicted by many crops of boils instead of one boil only; and although he is otherwise healthy, he may be brought to a very low state of health if these recurrences extend over a prolonged period.

In all cases it is good routine treatment to correct errors of diet and constipation, and also to remove any local frictional causes. Constitutional factors, such as diabetes or kidney disease, must always be inquired into as a matter of routine.

The common practice of applying fomentations of carbolic or boric acid is only justified and should only be resorted to when the boil has

reached the painful stage—*i. e.*, when the tension is great and the inflammation is passing on to suppuration. Here every care should be taken to prevent the pus, when the boil discharges, from infecting the hair follicles in the immediate vicinity, for this will produce a crop of boils, just as occurs experimentally by rubbing a culture of staphylococci over a skin surface.

In applying a fomentation the method which I have found most efficacious is to rub in powdered boric acid over an area of about two inches radius from the seat of infection, then to cut out a square of boracic lint to place over this area, leaving, however, an aperture in the centre of one square inch to allow the boil to remain exposed. The lint is then covered with a layer of oiled silk overlapping all the edges of the lint by a quarter of an inch. Thus the boil will still remain exposed through the aperture of half an inch in the oiled silk. The two layers are held in position by means of strapping, and a fomentation of 1 in 40 carbolic acid is then applied. It should be wrung as dry as possible, and applied as hot as can be borne by the patient; it is then quickly covered with oiled silk, cotton-wool, and a bandage. When the boil bursts, the pus discharges itself through the aperture in the boracic lint into the gauze or lint forming the fomentation, and so cannot spread itself over the adjacent skin surface. Probably the core will not come away for one or two days, in which case the applications will require to be renewed every six hours or so. When the core has separated, the cavity should be carefully wiped out, and the whole exposed area lightly touched up with pure carbolic acid, in order to destroy any remaining staphylococci. An ordinary dressing of double cyanide gauze should then be applied.

A patient who is periodically afflicted with boils knows well when one is coming. Its advent is heralded by symptoms of smarting irritation, with the almost irresistible desire to scratch the part. One of two things may now happen: either in two or three days' time the boil may happily abort; or, more likely, the course will be progressive till the fourth or fifth day, when the tension and pain will be so distressing that any relief in the way of poultices or fomentations is welcomed. It is, however, very desirable that nothing be left to chance, and it is in the early days of its course that the treatment by hypodermic injection of carbolic acid is so uniformly successful, the time of application *par excellence* being at the commencement of the trouble—*i. e.*, when the irritation begins.

The exact spot can usually be determined by seeing a minute inflamed papule like a pin-point in the site of a hair follicle, and from which

a small hair can be seen projecting. This spot should be touched with the point of a glass rod or blunt end of a needle which has been dipped into pure carbolic, as this renders the spot to some extent anæsthetic. Similarly also a crystal of carbolic acid may be placed over the spot and allowed to liquefy, care being taken to prevent its spreading. Two or three minims of pure carbolic are then drawn into the hypodermic syringe. The needle is entered in a perpendicular direction to a depth of a quarter of an inch, and gradually withdrawn while the contents of the syringe are steadily injected into the connective tissue underlying the skin.

When pus has formed, the hypodermic injection of carbolic acid is not attended by the same uniform disappearance of the boil. Once this stage has been reached, the pain is so severe as to call for an incision into the boil to relieve tension and create an exit for the pent-up pus and, later on, for the core. Few patients who are the subjects of recurring attacks of boils will submit time after time to the considerable pain attendant on the use of the knife unless nitrous oxide or some other general anæsthetic be administered. Local anæsthetics in such an acute inflammatory condition are of little or no value.

I have recently had the opportunity of carrying out this treatment by applications of pure carbolic in the pustular stage of boils, the idea being to allow the acid to find its way into the boil by destroying the overlying skin and connective tissues. The surrounding area is protected in the manner above described. First one crystal of pure carbolic acid is placed on the apex of the boil, then a second crystal, and so on until the pustule has been opened into. A channel is thus formed to allow of the escape of the pus and central core. A finely pointed probe should then be gently heated and dipped into the bottle containing the crystals of carbolic acid. A few of the crystals will adhere to the probe, the point of which should then be applied over the surface of the small crater—a proceeding which effectually destroys any remaining staphylococci.

This procedure is very effective, the only drawback being the somewhat tedious nature of the process; but it possesses the great advantage of giving no acute pain to the patient, who, at the most, only experiences a slight feeling of discomfort.—*The Hospital*.

OBSTETRICS & GYNÆCOLOGY.

On the Use of Pessaries.

A few hours spent in the gynæcological department of a hospital will make it abundantly clear that no apology is needed for a discussion of the treatment of displacements of the uterus. The mere fact that numbers of

women are wearing pessaries, from the use of which they receive no benefit or relief, cannot fail to convince the sceptic that the last word has not yet been written on the subject. We do not for a moment believe that we can write that word; we believe that these instruments have their legitimate uses, but that much discrimination is necessary in the selection of cases in which benefit may accrue. A pessary which is doing no good, and relieving no symptom, should be removed and some other remedy sought. At one time every uterine displacement, whatever its kind, was thus treated, and instruments of various shapes were invented by the more ingenious members of our profession, by which they hoped, no doubt, to cure their patients. The invention of so many different varieties means that the older instruments failed to cure. Most of these ingenious contrivances have been discarded now, and, in truth, where a pessary will do any good at all, the result can be achieved by a simple ring or by a Hodge.

The general disadvantages of pessaries are not always fully realised. They all, however well fitting, cause vaginal catarrh; in many cases one end of the instrument acts as a constant irritant to the cervix, and thus causes cervical catarrh. When used for prolapse, pessaries take the place of some of the natural uterine supports, in which atrophy is apt to follow. As a result of this they sometimes tend to make matters worse. The wearing of a pessary has a distinct effect on the mental state of the patient by constantly calling her attention to the generative organs. In a virgin this has a disastrous effect, and may lay the foundation of chronic neurasthenia. Those of the Zwancke type, if not removed every night, may lead to greater evils still. Deep ulceration in the lateral vaginal walls may occur, and vesico-vaginal fistula is by no means rare; these conditions may be due solely to long continued pressure, but it is also possible that some electrical action takes place where the vaginal wall touches the metal hinge of the instrument.

On the other hand, these disadvantages are not sufficiently serious to make us discard pessaries altogether. We must continue to use them in some cases, but we must adopt means to prevent their ill-effects as much as possible. By using the smallest pessary which will produce the required result, we shall limit the amount of vaginal catarrh and cervical irritation. It is quite common to meet with patients who are wearing the very largest which the vagina will hold, entailing much suffering in application and removal, and consequent neglect of this by the patient. A pessary should never stretch the vaginal walls unduly, and there should be no difficulty in passing the finger around in all directions. Frequent astringent douches will do much to wash away discharges and something

towards keeping down vaginal catarrh. Removal at short intervals, and occasional abandonment for a few days, will also help in the same direction. The material is also of importance. India-rubber pessaries cause more catarrh than those made of vulcanite. Vulcanite rings, however, cannot always be used, because of the great pain and difficulty experienced in their application. It is often of value to use a pessary which is made of some malleable substance, such as pewter, so that the curves of the instrument may be varied at will to suit the needs of the patient. Pessaries of the cup and stem type, held in place by straps fastened to a waist belt, are not often used, chiefly because it is found that they often fail in their object. In some cases they are expelled from the vagina by any straining effort, unless the straps are fastened so firmly as to cause pain. This latter difficulty can be overcome by directing the waist belt to be worn outside the corsets, instead of underneath them, as so many patients attempt to do. These are only to be thought of in severe cases of uterine prolapse, where no other simple instrument will remain in the vagina.

With regard to the cases in which pessaries may be expected to relieve symptoms, in cases of backwardly displaced uteri, they may be used when the uterus is freely movable and therefore easily replaced, when there are no prolapsed tender ovaries and when the symptoms—such as backache, leucorrhœa, and perhaps menorrhagia—may be reasonably supposed to be due to chronic uterine congestion. Such cases are usually those of acquired displacements in women who have had children or abortions. If, however, the displacement is congenital, with a small uterus and a short posterior vaginal wall, as a rule no particular symptoms are caused by the displacement, and pessaries as a rule will not keep the organ in its normal position. In a virgin with this congenital backward displacement they should not be used at all. If one is used for a retroversion, let it be an absolute axiom that the uterus must be replaced before the pessary is applied. If the uterus cannot be replaced by the fingers alone, use a tenaculum to pull down the cervix first and then replaced by the fingers. The sound should be abolished as a means of replacing the uterus, except in patients under anæsthesia, in whom the vagina can be rendered aseptic as for an operation.

Whereas all cases of so-called antelexion of the uterus, apart from pregnancy, are congenital malformations, instruments cannot be expected to relieve any symptoms, and should, therefore, be studiously avoided. The symptoms in such cases are due to poor development of the uterine muscle as a rule. Pessaries must be often used for cases of prolapse of varying degree of severity, often slowly to make the patient comfortable.

It must not be forgotten, however, that this does not cure the displacement, and it must be carefully considered whether some plastic operation may not perhaps achieve a better result.—*The Hospital*.

Thyroid Extract in the Toxæmia of Pregnancy.

In the transactions of the Washington Obstetrical and Gynæcological Society, as found in the October *American Journal of Obstetrics*, will be noted an interesting report by Fry of "Toxæmia of Pregnancy Relieved by the Administration of Thyroid Extract."

The urinary analysis extended over a period from July 18 to December 14, 1906. At the last examination the specific gravity was 1005, and urea was less than one-half of 1 per cent. No albumin or casts. At the time of the December examination the patient had suffered for two weeks with headache, insomnia and indigestion. He made no change whatever in diet or mode of living, but gave five grains of thyroid t. i. d. The examination of the urine made 36 hours after having begun treatment shows a rise of specific gravity to 1018, percentage of urea to 2.5. The above symptoms disappeared. The tablets were kept up twice daily for two weeks and omitted. Urinary examination became satisfactory, and patient was delivered normally one month ago (March last).

This is a report of unusual interest. The influence of the secretion of thyroid upon metabolism is by no means settled in the medical mind of today. Some of the assumed facts so glibly quoted by those who operate on the thyroid will not bear critical analysis. That exophthalmic goitre and myxœdema represent extremes of the same condition, the one being a manifestation of excessive thyroid activity, the other deficient activity, is not wholly satisfactory to one who has seen the symptoms of both these conditions present in the same patient at the same time. Nor does the fact that the profession has generally ignored the work of Thomson of New York prove that exophthalmic goitre is not due to toxic matters arising from the intestinal canal. In conclusion, the thyroid extract may have cleared up a toxæmia of frequency, and considering the source from which the report emanates, it is probable that it did so; but the facts set forth are entirely inadequate for us to accept it without mental reservation.—*The Lancet-Clinic*.

Ladinski's Sign of Early Pregnancy.

The sign is described as follows in the author's own language:—

"Frequently as early as the fifth week, but always in the sixth week, there can be felt in the median line in the anterior wall of the body of the

uterus just above the junction of the body and cervix, in other words in the isthmus of the uterus, a circular area the size of the tip of the fingers, which presents to the palpating finger the sensation of an elastic fluctuation.

"As pregnancy advances this area increases in size in a crescentic manner, until between the third and fourth month, when nearly the entire anterior body, with the exception of the upper crescent of the fundus, partakes of this change, and gives the cystic fluctuating feel to the examining finger. The change appears in the anterior wall of the uterus when the uterus is in the normal position or slightly anteverted, but in extremely retroverted or retroflexed uteri the elastic area appears in the posterior wall, but instead of being perceptible in the fifth or sixth week of pregnancy, is usually felt in the sixth or seventh week.

"In incomplete abortion or subinvolution there is a change in the consistency of a similar area of the uterine wall, but while in pregnancy the feel of this area is distinctly elastic or cystic, the sensation obtained in subinvolution and incomplete abortion is very soft and doughy. The two conditions can very readily be differentiated."

The only condition in which this sign is found other than in normal pregnancy is when a soft myoma, or cystic fibroid, is situated in the anterior wall of the uterus. The elastic or cystic character of the area is emphasized as the differential point.—*Charlotte Medical Journal*.

Treatment of Cracked Nipples.

ROUDAUD (*Journal de Medecine de Paris*, October 6, 1907) directs attention to the importance of treating the nipples during the last month of pregnancy. They should be washed daily with soap and water, and kept covered with a dry dressing. There is no need of other treatment. After delivery, special attention should be given to them. After and before each nursing, they should be carefully washed with a mild antiseptic solution (boric acid in water, or brandy and water). It is not advised to have a wet compress, for fear it might cause maceration of the epidermis. Between the nursings, a dressing made of three thicknesses of sterilized gauze is kept applied, over which a layer of absorbent cotton is laid, and a bandage pinned over to keep it in place. The mouth of the child should be washed out before nursing (with a tampon of cotton moistened with boric acid water). This is to prevent infection of the breast. In case of pain, the glycerite of starch may be applied to the nipple and covered with dry gauze. Before presenting the nipple to the infant, it should be carefully washed with boiled water, to which some

hydrogen peroxide may be added (half and half). After nursing, the washing should be repeated, and the breast covered with cotton, and confined with a bandage. The rubber nipples, on account of the difficulty in keeping them clean, should be avoided as much as possible—*New York Medical Journal*.

The Application of the High Forceps in Face Presentation.

O. V. HERFF, Basle (*Hegar's Beiträge*, 1907, Bd. xii, Ht. 1), reports an interesting case which proves that the forceps may be useful even in high transverse presentations of the face, and that it should therefore be tried, before the perforation of the child is attempted, if version is no longer possible or the opportunity for it has been missed. The operation, however, is not one for a beginner, and must be done without any haste; axis traction forceps must be employed.

R. JOLLY, Berlin (*Zentralb. f. Gynökol.*, 1907, No. 50), reports two cases which are certainly not encouraging. In the first the asphyctic child was revived, but died a few days afterwards, apparently owing to injuries to the skull by the forceps; the mother's convalescence was delayed by a feverish childbed owing to pelvic exudation. In the second case the child died during labour, and the mother's childbed was fever free. JOLLY admits that these cases have left him no desire to try the high forceps in face presentations, and that forceps should not be applied until the head is in the pelvis. Otherwise there is nothing to be done but to perforate—or under the most favourable circumstances, to perform pubiotomy—*The Journal of Obstetrics and Gynecology*.

THERAPEUTICS.

Poisoning by Metallic Nickel.

G. RICHTER (*Four. American Med. Assoc.*, Nov. 9, p. 1606).—A man, aged 24, was a polisher of aluminium, copper and brass, but principally of nickel. In the process much dust was evolved which was only partly removed by "sucking blowers." He consulted the writer for prostration, a sense of pressure on the stomach, and slight headache. The skin was pale and the complexion was sallow. In the evening severe pain occurred in the lower abdomen which was not increased by pressure. Repeated doses of $\frac{1}{2}$ gr. of morphine gave little relief. Magnesium sulphate produced large evacuations and on the next day there was some improvement and the pain was located around the navel. The urine contained neither albumin nor sugar, but was of a peculiar lightgreen colour. Fresh urine gave no reaction for nickel; 400 c.c. were evaporated and incinerated.

The ash was treated with hot concentrated nitric acid. After the removal of iron the filtrate gave, with oxalic acid, a faint greenish-white sediment; and with ammonium sulphide, a brown colour. Blood examination showed: hæmoglobin 70 per cent., normal erythrocytes, a striking number of platelets in aggregation. Recovery took place in 10 days.

Nickel poisoning is very rare. In this case the symptoms were cachexia and anæmia followed by severe colic. Perhaps nickel dust accumulated in the intestines and irritated them, and some of it was converted into a salt and absorbed into the blood, where it produced the anæmia and blood platelets. Possibly some of the other metallic dusts evolved in the patient's work were also injurious. He said that many of the workers frequently complained of ailments which they attributed to inhalation of aluminium dust. In his case it is noteworthy that although the dust was presumably inhaled there were no pulmonary symptoms.—*The Medical Review*.

Oedema of the Lower Limbs from the Abuse of Sodium Bicarbonate.

CLEMENT (*Lyon Medical*, Dec. 1, p. 896).—A healthy man, aged 60, had suffered for 6 weeks from swelling of the legs. This swelling was only present after work and disappeared after rest in bed during the night. The feet and ankles were unaffected, but above the region compressed by the boots was a marked oedematous swelling extending in an attenuated form as far as the knees. Over the tibia the oedema was soft and easily imprinted by the finger. Examination of the heart and lungs revealed no lesion to account for the swelling. The urine was abundant, free from albumin, decidedly alkaline and deposited phosphates. It was free from ammoniacal odour or any sign of decomposition. On questioning the patient it was ascertained that since 25 he had been subject to pyrosis for which he was in the habit of taking large quantities of sodium bicarbonate. For some time the quantity had been considerably increased as he added a liberal dose, without measurement, to the water he drank with meals and occasionally between them, while he also used an alkaline table water containing 4 or 5 grammes per litre. The writer ordered the discontinuance of the soda without any other modification of the patient's habits. The oedema decreased from the third day of this regime and it gradually disappeared in about 20 days. The urine remained alkaline for 10 days, when it became neutral, but not till after the 15th day did it become acid.

The disappearance of the oedema in the absence of all treatment, save the suppression of bicarbonate of soda points to the abuse of this substance as the cause of the symptoms.—*The Medical Review*.

Action of Yohimbin on Females.

It is partly true that substances which act as aphrodisiacs on the male have only an emmenagogue action on the female. This is said to be the case with yohimbin by the trade representatives of this drug. DAELS (*Berl. klin. Wochenschrift*, Oct. 21, 1907) has experimented on animals with a view to determine whether the rut could be produced when the time was unseasonable and also in very young and old dogs. The results here were negative. Given just before or during the rut, some positive evidence of the power of the drug seemed present (increase in follicular hemorrhages, etc.). The remedy is doubtless of value to promote menstruation in the human female (in simple amenorrhea and dysmenorrhea). It must be borne in mind, however, that a few observers have noted an increase in sexual desire, associated in some cases with serious psychical disturbances. These must be regarded as evidences of a toxic action and guarded against by suitable dosage.—*The Dietetic and Hygienic Gazette*.

Apomorphin in Acute Alcoholism.

ROSENWASSER speaks highly of the value of apomorphin in doses of from 1-30 to 1-10 grain as a sedative and hypnotic in cases of acute alcoholism. A very few minutes after administering an emetic dose by hypodermic injection vomiting occurs, due to the action of the drug on the vomiting centre of the medulla. Just before vomiting the pulse is weakened and increased in frequency, and after vomiting ceases it becomes slower and stronger, often stronger and slower than it was before the injection was given. Vomiting is preceded by salivation and slight nausea. It may occur only once or be repeated several times. Very soon after the vomiting subsides, a matter of a few minutes in most cases, the patient falls into an apparently natural sleep and may sleep from two to eight hours, awakening refreshed, sober, and rational in most cases. It is not necessary, however, to give the emetic dose in order to obtain the hypnotic effect, and in many cases 1-30 grain will induce sleep.—*Med. Record* and *J. A. M. A.*

OPHTHALMOLOGY.**The Modern Treatment of Ophthalmia Neonatorum.**

BY

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Although expert advice is always desirable in every case that is not evidently quite mild, there must always be babies whom the general practitioner is obliged to treat himself, and a knowledge of the results

obtained by careful experiments may therefore be of value to him. The following detail of treatment is one that gives very satisfactory results:—

Prophylaxis.—(i) Wipe the eyelids clean with a *damp* swab immediately after birth. (ii) Drop protargol 10 per cent. into each conjunctival sac as soon as possible after birth.

Treatment.—(i) Cleanse the conjunctival sac every half hour with a warm solution of borax (3ij. ad. Oj). (ii) Foment the eyes with squares of gauze wrung out of a hot solution of the same kind. Change every half hour. Do not cover the gauze with anything else. (iii) Drop protargol 10 per cent. into the conjunctival sac every hour. (ii) Once a day instil protargol 20 per cent., keeping the solution in the conjunctival sac for two minutes.

If the cornea becomes hazy.—Instil atropine (grs. ij. ad ʒj.) three times a day, and continue all the other measures.

In hyper-acute cases and in relapses.—Treat as above until the tense swelling is reduced and the secretion free, then make a single alteration; instead of instilling the 20 per cent. protargol, paint the whole of the palpebral conjunctiva with 2 per cent. silver-nitrate solution once a day. After a minute, wash off any excess of fluid with sterilised salt solution.

REMARKS ON PROPHYLACTIC MEASURES.

A damp swab for cleansing the eyelids is preferable to a dry one, or to dry rags, because these stick to the greasy skin surface, and are thus more difficult to manipulate, and less certain to remove all trace of foreign matter. Wet swabs are also inadvisable, since the cleansing solution, now charged with infected matter, will in all probability leak into the conjunctival sac, and thus produce the very evil it is desired to avert. For the same reason damp swabs, *i.e.*, swabs wrung out of boiled water as "dry" as possible, should be prepared shortly before birth, and should lie to hand in a clean, dry vessel.

It is not now necessary to advocate the use of Cr  d  's method of prophylaxis. It is common knowledge that the percentage of cases of ophthalmia in maternity hospitals, formerly 4 to 19 per cent. in different institutions, has been reduced by its use to 0.2 per cent. But the objection in private practice is the inflammation which it causes. This cannot be remedied by using a weaker silver nitrate solution than 2 per cent., for this diminishes the protective effect. Neither is perchloride of mercury a good substitute, since this, in the strength required, also causes irritation. v. Herff, however, has demonstrated that protargol is an efficient prophylactic. In 3,000 children in the Basle Women's Hospital who were

treated in this manner not a single case of ophthalmia occurred. This protien silver salt causes only a slight irritation, lasting but a few minutes.

REMARKS ON THERAPEUTIC MEASURES.

The object of the cleansing solution is simply to remove dead infected matter as readily as possible, and this is best effected by a lotion which is bland, alkaline, and antiseptic. Borax possesses all these qualities, and it is also readily soluble in water. Although perchloride of mercury is a stronger antiseptic, yet it is irritant, and its frequent use tends to increase inflammation.

Warm fomentations are preferable to ice compresses, because they encourage a free circulation, thus enabling the leucocytes to make a better fight against the micro-organisms. In all probability the fomentations have no effect on the organisms themselves. Ice compresses may certainly retard the activity of the bacilli, but they contract the vessels, hindering the circulation and thus also the process of cure. They also depress the vitality of the tissues, and so favour keratitis and ulceration of the cornea. Gauze exerts only a light pressure on the eyelids, and is kept moist by constant changing; this moisture prevents the secretion from becoming dry, sealing the lids together and damming back the pus. Vaseline or ointment is therefore unnecessary, and it is an advantage to be able to dispense with both, since their use makes the lids slippery and examination or treatment difficult.

SILVER PREPARATIONS CONTRASTED.

Thus far effects only have been dealt with. To combat the causative bacilli three drugs present themselves for choice—namely, nitrate of silver, protargol, and argyrol. The actions of the two latter drugs have been widely studied of late, and opinions differ greatly as to their value. That protargol is the most valuable of the three is shown by the results obtained by the following observers:—

HARRISON BUTLER ("Ophthalmoscope," January 1907, p. 14) compared the effects of the three salts by using a different one for each eye in the same individuals. His cases were mostly caused by the Koch—Weeks bacillus, and he concludes that protargol (33 per cent.) is slightly better than silver nitrate (2 per cent.), and markedly better than argyrol (33 per cent.), while of the last two the latter is slightly the superior.

MYLES STANDISH ("Ophthalmic Record," 1906, p. 395) compared the effects of these three drugs in cases of ophthalmia neonatorum while the cornea is still clear. His results are as follows:—

Of 50 cases treated with silver nitrate, 6 per cent. developed corneal mischief.
Of 150 cases treated with protargol, 2 per cent. developed corneal mischief.
Of 201 cases treated with argyrol, 2 per cent. developed corneal mischief.

MARSHALL and NEAVE ("British Medical Journal," August 18, 1906, p. 359), by a series of experiments undertaken at the request of the Therapeutical Committee of the British Medical Association, proved in the laboratory that silver nitrate and protargol are equal in antiseptic power, while argyrol has very little such action. All three salts were used with the same percentage of silver, but argyrol, even in much greater strength, still shows but slight antiseptic properties.

V. HERFF ("Münchener Med. Wchnschr.," 1906, p. 958), by laboratory experiments with protargol and argyrol, obtained the same results.

Clinically, then, protargol and argyrol are more useful than silver nitrate, and of the two protargol is the more efficacious. Laboratory experiments indicate protargol and silver nitrate as most active, and since the latter is less effective in practice the final choice falls upon the former.

THE DANGERS OF SILVER NITRATE.

Silver nitrate is a dangerous drug. DARIER makes the following bold statement: "Complications are generally caused by unduly strong solutions of silver nitrate." BAILLART says that silver nitrate, if not very prudently used, may cause alteration of corneal epithelium; and this is the very evil we are anxious to avoid. Also silver nitrate is painful; protargol is comparatively painless. Silver nitrate should be used by the physician only; the application of protargol may be entrusted to the nurse or attendant. Silver nitrate must not be used in the early stage; protargol may be used throughout. Silver nitrate can only be used once a day; protargol may be instilled with great frequency.

In very acute cases, however, silver nitrate is the better drug. BAILLART says that the gravest cases are never so rapidly improved by protargol as by silver nitrate. DARIER also recommends its use in relapses, which are often hard to overcome.

PRACTICAL HINTS.

1. In cases of ante-partum ophthalmia, when the child is born with the eyes already inflamed, do not apply Cr  d  's treatment. There is a tendency to think that if it is useful as a routine, much more is the method of value when inflammation is actually present. This is a mistake. The disease is already in its first stage, and silver-nitrate solution will only do harm by increasing inflammation.

2. If Cr  d  's method has been neglected at birth, do not apply it on the first sign of inflammation. It is then too late.

3. Never use silver-nitrate solution stronger than 2 per cent. Mistakes are so often made, and the results are so disastrous, that it is well to

emphasise the caution that a solution labelled 10 per cent. is 5 times as strong as one labelled 10 grains to the ounce (2 per cent.).

4. Examine the cornea of a child with ophthalmia neonatorum at least twice a day. There are only two ways of doing this. The child's hands should be securely held by one assistant, the head absolutely fixed by another, or between the operator's knees. Then the tips of the thumbs should be placed opposite one another on the extreme borders of the child's lids, and while exerting a gentle but firm pressure on the eyeball, and also holding the two thumbs constantly parallel to each other, the lids should be separated as far as possible. Maintain this position steadily until the child moves the eye, as it is sure to do sooner or later, so that the cornea comes for a brief moment into full view. The other method is by metal retractors, which should only be used as a last resort.

5. Protargol must be prepared with cold water. The best method is to dust the powder on to as large a surface as possible of the required amount of distilled water, and leave without stirring. It will dissolve in about half an hour. The solution does not keep well unless preserved in an amber-coloured bottle in a cool, dark place. A convenient form for the practitioner who does not often use it, is the *soloïd* of 1 gr. or 4 grs.

6. If the inflammation is limited to one eye, it is in all probability a result of congenital duct obstruction. The case should be referred to an ophthalmic surgeon. Recognised early, these cases can be cured rapidly and easily, but if allowed to persist for some months, treatment is often difficult and tedious.

7. The percentage of cases of ophthalmia neonatorum due to the gonococcus has been estimated at 60 per cent. (SYDNEY STEPHENSON).

8. With regard to prognosis, DE SCHWEINITZ'S opinion is valuable. He states that if an eye is seen while the cornea is still clear, except in diphtheritic or inherently malignant types, or in cases of malnutrition, a complete cure should be looked for. It has been estimated that 66 per cent. of the cases of ophthalmia neonatorum recover with unimpaired sight.

9. Protargol must not be used for too long. It undoubtedly stains the conjunctiva (SNELL, DE SCHWEINITZ).—*The Hospital*.

The Pathology and Treatment of Myopia.

SATTLER, Professor.—*The pathology and treatment of myopia; being the Bowman Lecture, delivered Friday, June 14th, 1907.—Transactions, Ophthalmological Society, U.K., 1907.*

It is not possible in an abstract to do justice to SATTLER'S Bowman lecture on myopia. One must be content, therefore, to select the principal

points, leaving the interested reader to consult the original, which he will find it well worth his while to do. SATTLER, in the first place, deals with the normal growth of the eyeball, shows how the hypermetropia at birth gradually decreases, until between the sixth and twelfth years of life about three-quarters of all eyes have reached emmetropic refraction or nearly so. After touching upon curvature myopia and stationary low myopia, the author passes on to the consideration of the progressive form. There are essentially two conditions upon which the development of myopia may depend: (1) a number of mechanical factors; and (2) predisposition. The mechanical factors are the convergence and lowering of the visual lines, associated with a stooping posture. SATTLER considers that, as regards accommodation, it has been proved conclusively by HESS and by HEINE that there is no increase of intraocular tension during accommodation. In close work the eye is under the influence of several combined innervations, *viz.*: (1) convergence; (2) depression of the visual plane; (3) associated lateral movement; (4) finally, under a more complicated innervation necessary for maintaining the position of the vertical meridians of the retina according to the different positions of the visual lines. Occupations which require a steady, symmetrical convergence, associated with depression of the visual plane, are not so prone to produce and to promote myopia as those which are connected with a continual wandering of the visual lines, as reading, writing, etc.

SATTLER has found by many measurements that it is the part of the eyeball behind the insertions of the muscles which alone becomes elongated in myopia, thus contrasting with the uniform bulbar enlargement from increased intraocular tension in infantile hydrophthalmia. The author goes on to describe the progressive changes which take place in the coats of the eyeball as the result of the complicated forces which bear upon the sclerotic, which latter in the infantile eye is rather thin and much more distensible than in the adult. White patches are, in his opinion, to be attributed to little rents in the membrane of Bruch, whereby the underlying capillaries so closely connected with it are damaged and replaced by connective tissue. All these changes are going on without any perceptible signs of inflammation, and inflammation is by no means the prime cause of the appearances described by the term sclerotic-choroiditis posterior. In cases with obvious choroiditic changes these are to be considered as a complication which ætiologically has nothing to do with the progression of myopia, although it is not improbable that some changes in the blood-vessels connected with the stretching of the choroid may create an increased tendency to the deposition of microbes or to the action of toxins that may happen to be in the blood.

As to the question why only some eyes become myopic under identical mechanical factors, we must answer "predisposition," and a mighty factor in predisposition is "heredity." That which is inherited is a defective resistance of the sclerotic in the posterior part of the eye. The author enlarges upon the subjects of heredity, consanguinity, and debility during convalescence, associated with much close work in an unfavourable posture, as factors in predisposition. He does not consider that there is either a sex or a race predisposition. The prevalence of high myopia in women is to be attributed to occupational strain, and the racial myopia of the Germans to a similar cause. Myopia in the uneducated, and progression taking place in more advanced life, are touched upon; and the author asserts his opinion that there can be no sharp distinction between two essentially different kinds of myopia, a pernicious one and another acquired by school work, the former being a real disease, and the latter perfectly harmless.

This leads up to the question of prevention and treatment. SATTLER'S experience leads him to proclaim that, with full correction, strictly combined with instructions as to stooping, etc., we are able to check the progression of myopia, or at least to render it much slower. The eyes should be frequently re-examined, and even if something under full correction is given at first, it may be possible, if the myopia is not too high and the patient under twenty, to give the full correction at the end of six months or a year. "I have got the impression," says SATTLER, "that under full correction—or nearly so in high degrees of myopia—the eye is less exposed to the more serious choroidal and retinal complications. In such cases stooping must be absolutely avoided."

Regarding operative treatment, reference is made to the author's paper at the International Medical Congress, Lisbon, 1906: "I only wish to say that discission of the transparent lens ought to be entirely abandoned, and extraction with a curved lance-shaped knife adopted. Not only in myopia, but also in zonular and other forms of soft cataract, this operation is infinitely superior to discission. This one operation, mostly followed at an interval of a week or so by one discission, of the secondary cataract, is sufficient to obtain a clear pupil in a fortnight or little more."
—*The Ophthalmoscope.*

DERMATOLOGY.

On certain Skin Diseases.

URTICARIA PIGMENTOSA (SOMETIMES CALLED SANGSTER'S DISEASE).

THIS case (a boy, aged eight) has been under treatment for some few years. Urticaria pigmentosa is a somewhat rare condition, which comes on early in life, usually during the first few months. It consists of a series of recurrent crops of nettle-rash, appearing on any part of the body, and leaving behind them pigmented stains. We do not always see the urticarial spots—they come and go; but the pigmented stains are always present, and are readily diagnosed when the condition is once seen. Sometimes rubbing the pigmented parts will raise a wheal. The stains might be mistaken for a purpura or purpuric erythema, but for the long history of recurrent crops and the early age of the patient. The only other disease it is apt to be mistaken for is Xeroderma pigmentosa, a still rarer disease, which also comes on in early life, but Xeroderma pigmentosa starts usually on the uncovered parts of the body (face and neck), has no wheals, and presents permanent stains, with atrophic patches. In Urticaria pigmentosa, most of the pigmented stains only last a few months, and then fade away, and the recurrent wheals are pathognomonic. Pathologically, the disease indicates two inherent hereditary conditions. One is a vascular or angio-neurotic factor, which shows itself in the associated nervousness, and in a tendency to the vascular changes frequently observed in these patients. There are also blood changes, allied to hæmophilia, which show themselves in the pigmented effusions. In ordinary urticaria, on the other hand, the exudation is simply serous.

There are three kinds of exudation met with in skin diseases. One is serous, such as occurs in urticaria, and in this condition the exudation dies away and leaves no stain behind; another is sero-sanguineous, which presents a certain amount of pigmentation, such as is seen, for instance, in erythema. Finally, there is a sanguineous exudation, such as occurs in purpura. Urticaria pigmentosa is attended by a sero-sanguineous exudation, and the cause of this, in my view, is (1) an inherent weakness in the vessel walls, and (2) an innate fluidity of the blood allied to hæmophilia. There are some who dispute this view of Urticaria pigmentosa, and modern histological methods have discovered in the more persistent lesions a mast-cell infiltration, but I am not satisfied that histological methods are the best for studying the pathology of a generalised skin disease. Histology is useful in the localised forms of skin disease, and is indeed an essential aid to the diagnosis and treatment of the skin in such cases. But when a skin disease is part of a constitutional condition or malady you cannot

study it merely by histology, any more than you can study malaria by making sections of the spleen.

TREATMENT.

This child has improved very much under prolonged treatment. Lime is a most important constituent of the blood, and it is generally found to be deficient when the blood exudes from the vessels too readily. During the outbreaks of urticaria, this case is treated with what I call "Mistura ricini calsis." Its composition is as follows:—

Castor oil	..	..	..	..	℥j
Powdered gum acacia	..	..	..	..	ʒij.
Syrup of orange	..	..	..	..	ʒij.
Saccharated solution of lime	..	..	..	..	ʒij.
Lime water, up to	..	..	..	..	ʒij.

Dose, one teaspoonful.

At the beginning of an outbreak the patient has also had (fairly constantly) Calcium chloride gr. v. Ammonium bromide gr. v.; Liquor arsenicalis m. iij. Twice a day after meals. The calcium is given to increase the coagulability of the blood; the bromide of ammonium to allay the irritability of the angio-neurotic system; and the liquor arsenicalis as a nerve tonic. No local applications to the skin are any good.

Organic acids diminish the coagulability of the blood very much—citric and acetic acids particularly—because they dissolve the calcium out of the blood; therefore acids should be avoided in the treatment of such cases.

There is another point about this interesting case; the boy contracted ringworm at school. At first I was compelled to give him the usual old-fashioned lotions and ointments, because he got into such terrible panics at the idea of having X-rays. These cases are always very nervous and hysterical. It was found, as we expected, that his skin could not stand even the mildest applications. Later, Dr. AGNES SAVILL, persuaded him let her apply the X-ray tube; it destroyed the ringworm very promptly, had not any effect on the skin, and improved the spots of urticaria pigmentosa in that situation.

THE RASHES OF SCARLET FEVER AND ERYTHEMA SCARLATINIFORME.

The differentiation between the rashes of Scarlatina and Erythema scarlatiniforme is extremely important, and may be set down in tabular form.

SCARLATINA.	ERYTHEMA SCARLATINIFORME.
1. Temperature — Sudden advent, high.	1. Not much pyrexia or headache.
2. Throat involved.	2. Throat not involved.

- | | |
|--|--|
| 3. Rash diffused, non-marginated, with punctate element. | 3. Rash tends to be localised, marginated, nonpunctate, duration considerable. |
| 4. Tongue strawberry, second or third day. | 4. Nothing characteristic. |
| 5. Exfoliation general—Desquamation later on. | 5. Early desquamation. |

The diagnosis between these two conditions is important, and sometimes very difficult; but in typical cases of scarlatina we have four points of differentiation:—

1. *Sudden* advent of high temperature. There are three fevers which show this phenomenon. We should always suspect with a sudden high temperature one of three diseases:—scarlet fever, erysipelas, or small pox. The onset may be attended by vomiting.

2. The next thing to appear is a scarlet redness of the throat, which does not affect the larynx, but only the fauces and the tonsils.

3. The rash appears on the second day, and may be so evanescent that it disappears at the end of thirty-six hours; usually it lasts three or four days. It consists of a generalised erythema with punctate crimson spots or papules. It appears first on the neck and chest.

4. The strawberry tongue appears at the end of the second or third day.

In Erythema scarlatiniforme, the pyrexia does not often go above 100° or 100.5°. The patient does not usually complain of headache or of any other symptoms of a constitutional disturbance. There is no strawberry tongue, but the rash is present in both, and it is sometimes very difficult to diagnose between the two. The rash of Erythema scarlatiniforme is generally more or less diffused, with a tendency to be limited or to predominate on the flexor aspects, and on the abdomen. It is often patchy, but symmetrical. The punctate element is usually, but not always, wanting. The eruption lasts from one to four weeks, much longer than that of scarlet fever. Exfoliation generally follows. Recurrence is frequent. Both eruptions are due to a toxin that tends to poison the epithelial structures of the body, that is to say, the skin and the kidneys. In scarlatina and small-pox the ends of the extremities are for some reason or other affected very constantly, and at a later stage than the other parts. In scarlet fever patients you always look at the feet to ascertain if they are free from infection, because they are the last to exfoliate. The peeling here is useful to the physician, because it shows the termination of the disease.

THE RASH OF SCABIES.

Scabies is usually a papular, sometimes a multiform eruption, especially in children. The rash of scabies attacks the flexor surfaces of the wrists, the clefts of the fingers, the axillæ, the fronts of the arms, the groins, and the abdomen. These are the characteristic positions of scabies. The essential features are itching, and the presence and the distribution of the papules. By these points one can differentiate it from idiopathic prurigo. I regard many eruptions (scabies, lichen urticatus, prurigo senilis, etc.), which present itching associated with papules, as coming under one head, and belonging to one great clinical and pathological group—Prurigo. It is by the characteristic distribution of the papules that scabies is differentiated clinically from all other forms of prurigo, and, of course, histologically by the presence of the *acarus scabiei*. But the insect is often very difficult and always tedious to find.—*The Hospital*.

Alopecia after an Acute Illness.

A boy of ten came with extensive patchy baldness, which was stated to have first appeared a month after he had had rheumatic fever six months ago. His mother, with the assistance of the local chemist, had been treating it assiduously for "ringworm." He was said to be a very nervous lad, and in infancy he cut his teeth "with fits." The alopecia was of the mixed patchy and band type, the largest area being over the left parietal region, while a wide belt extended backwards from this part towards the occiput to meet with a smaller patch upon the right side of the head. Close examination revealed a few "point of exclamation" hairs, but no stumps, such as would be seen in *tinea tonsurans*. The dentition was most irregular, the central incisor teeth being especially crowded together and out of line, but there was no caries. The eyesight was said to be normal, though this was not tested at the hospital. True alopecia areata, or "area Celsi," may, of course, appear soon after or during an illness as it may at any other time, but it is rather more common to meet with a general thinning of the hair, the loss of which may prove quite alarming, owing to defective nutrition of the scalp itself. The question as to whether the whole hair should be cropped short during an acute illness, such as scarlet fever, is one that has been much debated, one modern authority, at least, regarding the practice as "absolutely unnecessary, barbarous, and without common sense to support it." On the other hand, many of the older dermatologists believed that the habit was not only justifiable but really beneficial, tending to promote hair growth. Short hair is more comfortable in bed, and it is both easier

to keep clean and to disinfect afterwards, than when long tresses are worn. The prognosis in these cases is, happily, good. A useful remedy for local application is chloral hydrate in the strength of five grains to the ounce of lanoline. A little red oxide of mercury may also be incorporated with the ointment with advantage. The rubbing must be undertaken cautiously at first, and this is a pretty safe rule for all cases of alopecia, be they ever so stubborn, for one can never tell how a given scalp is going to react to stimulants when locally applied. The spirituous lotion of *cantharidis* may be employed at the same time, and it will also be generally necessary to give some internal tonic, such as iron or strychnine.—*The Hospital*.

PÆDIATRICS.

Method for reviving children born apparently dead.

OGATA, *Beiträge zur Geb. und Gynäkologie, Jour. A. M. A.*, gives an illustrated description of his method of resuscitating children born asphyxiated. It has been used in his clinic and elsewhere in Japan during the last twelve years, with constantly increasing satisfaction. The rooms in the Japanese houses are too small to allow the Schultze swinging technic, and it is, besides, repugnant to the Japanese, as it is liable to scatter blood, mucus and meconium around. The infant is held in the left hand, its head and extremities hanging down, the abdomen and trunk curving upward. The right hand is held flat, the fingers close together, and the infant's heart region is struck light regular blows with the tips of the fingers, from ten to fifteen times a minute. This striking is a stimulus to the skin, but it also compresses the chest wall and lungs and thus induces expiration. As the fingers are raised, the elastic chest wall springs back to place, and this induces inspiration. The heart action is also stimulated and the circulation becomes more active. In case more energetic measures are required, he takes the ankles in the right hand and with the left hand under the back of the chest—the thumb and forefinger clasping the neck—without any pressure on the chest, the trunk of the child is slowly bent over until its face touches the top of the feet, or even a little farther. This movement presses the thorax and the abdominal cavity close together, pushing up the diaphragm. The lungs are squeezed together until there is a strong expiration, while the rise of pressure inside the thorax stimulates the heart action and starts the column of blood in the aorta to moving. Any fluids in the air passages can readily run out of the mouth as the head hangs down. The infant is held a few seconds in this attitude, then the trunk is raised and forced back to the horizontal plane or beyond.

The air rushes in as the air passages thus open and the diaphragm descends. After a few seconds the expiration movement is repeated, and so on, until natural respiration is established. In extreme cases, he takes away the left hand, holding the child only by the ankles with his right. As the trunk falls to the perpendicular the arms droop forward and the chest stretches and visibly protrudes, the traction from the pendent arms helping thus to induce deep inspiration. More blood flows to the medulla oblongata in this position, and this stimulates the respiratory center. From this position the child is brought back to the expiration position. These movements are repeated at rhythmic intervals, from eight to ten times a minute. To prevent chilling, the child is dipped into a warm bath about every minute. The duration and intensity of the procedures are regulated by the color of the skin, control of the limbs, spontaneous movements of the extremities, spontaneous efforts at breathing and the heart beat. A crackling sound during the inspiration movement sometimes accompanies the inflow of air into the lungs. As soon as spontaneous respiration is observed, the child is placed in a warm bath and watched. In favorable cases the respiration soon becomes more vigorous, the skin grows pink, twitching around the nose and mouth is observed, the limbs grow less limp and the head is held upright. If respiration remains weak and irregular, benefit is sometimes derived from pouring cold water over the chest in the warm bath. If this fails, the swinging movements must be resumed. The main factor in success is patience on the part of the physician. The resuscitated child must be supervised; many succumb to atelectasia and aspiration pneumonia. If there is rattling in the chest, suggesting the presence of aspirated fluids, these can be expelled by holding the child up by the feet and letting it swing slightly to and fro, when the fluids will run out of the mouth. Ogata adds that this technic stimulates respiration and circulation alike by simple measures without danger of injury to the little body.—*The Dietetic and Hygienic Gazette*.

Pseudomasturbation in Infants.

RACHFORD (*Arch. of Ped.*, August, 1907) contributes a valuable statistical study with a collection of hitherto unreported cases.

Pseudomasturbation is a syndrome occurring in infancy and early childhood, which has also been described as thigh-friction and infantile masturbation. The child lies on its back; the thighs are flexed, crossed and pressed tightly together, closely embracing the external genitalia. In this position the infant makes a wriggling or up and down body movement and rubs its thighs together. In other instances the genitalia are

rubbed with the hands or feet against some piece of furniture or other foreign object. These movements are apparently attended by pleasurable excitement; the face is flushed, and there is a marked increase in the general nervous tension. Following this act, which continues for a few minutes only, there is general relaxation, accompanied for a few minutes by mild perspiration, quiet contentment and in some instances sleep. The average age of the onset of this neurosis in the cases presented in the author's table is 16 months, though the condition may occur as early as the 4th month. The vast majority of all cases occur in female infants; thus of the 52 collected cases, 48 occurred in female and 4 in male infants. The explanation offered by the author for this is that irritations of the genitalia are much more apt to be overlooked in the female than in the male child, while in addition it is noteworthy that the clitoris is more exposed to external irritants in infancy than in childhood, because of the comparative lack of development of the labia which later enfold it. The habit, which is formed by the practice of pseudomasturbation, becomes, after a time, one of its most potent causal factors. Heredity is an all-important factor, as in fully three-fourths of the cases there is a distinct neurotic inheritance. A gouty inheritance may also predispose to this condition by producing in infants the tendency to periodic attacks of acid urine. Illness, and especially malnutrition, greatly increase the irritability of the nervous system of the young, and in this way may be factors in starting or in prolonging this habit. Among the direct causes are those which produce irritation about the genitalia. Thus an acid condition of the urine occurs in more than one-third of the cases published. Constipation, and on the other hand colitis, may be other causes. Diseases of the rectum, pin worms, tight and irritating clothing, and uncleanness of the genitalia, are also causes. The prognosis is very good, though the period of time required is long. The average of the cases reported was 19 months. There is practically no connection between the pseudomasturbation in infancy and true masturbation in later life. The essential part of the treatment consists in the interruption of the habit as soon as possible, and in the immediate removal of all causes of irritation. Constant watchfulness is an essential. The child should be kept in a sitting posture as much at a time as possible. In some cases, forcible restraint may be necessary.

So far as general measures are concerned, the author lays great stress upon the relieving of acid conditions of the urine. For this, benzoate of soda and tincture of belladonna may be employed in appropriate doses. Older children, in whom the practice is apt to occur at night, may often be helped by the use of bromide of potash and belladonna given at bed-time. It must be remembered, however, that these cases must often be watched over a period of years to prevent a recurrence of the habit, even after it has temporarily disappeared.—*The Interstate Medical Journal*.

THE ANTISEPTIC.

APRIL, 1908.

Sanitation in India.

IT must be admitted that sanitation is a subject upon which little or no thought has been bestowed in this country. The existence of a department organised for the specific purpose of looking after the sanitary needs of India has not stimulated activity to the extent desirable and necessary in the direction of the improvement of public health. Of all forms and kinds of wealth of a country, its public health is the most valuable asset—the most fertile and prolific of its resources. In all civilised countries where the old mercantile theory of wealth has been exploded not merely as a theory, but completely abandoned in practice, the preservation and improvement of public health has been held to be a matter of supreme concern. City, Provincial and Imperial authorities devote the same amount of attention and manifest the same amount of anxiety with respect to matters relative to the health of the people. Administrative acts and legislation are so shaped as to promote this object. The growth of populations in cities and towns, the free commerce among all the countries of the world, modern industrialism and the fierce competition which it has involved, have given rise to conditions which demand greater attention on the part of peoples and governments to be paid to questions of sanitation. Sanitary science itself has been growing with the growth of the sanitary needs of large and increasing populations. Doubtless, upon certain sanitary problems specialists and experts differ, and will continue to differ, until experiment and experience have solved them in a manner acceptable to all. But certain rudiments or elementary truths with respect to which there is no contest between rival schools of theorists may well be placed before the world as practical rules of conduct for the guidance of large aggregates of population. In no country has the need for it been greater than in India. In this country, as in the west, questions have arisen which must be grappled with in a practical spirit. In ancient India, under different conditions, the sanitary problem was never so complicated. But now we are in constant contact with the outer

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world in a variety of ways. Within the country itself there is a free, unrestricted and constant intermingling among classes and communities, once so far apart, on account of easy means of communication. Besides, India is fast developing a city life giving rise to conditions which must be dealt with in the same spirit in which such conditions are faced in Europe. In anticipation of such conditions and with a view to supply the sanitary needs as they arose, a department of sanitation has long been created. But we cannot say that it has been well equipped. What, with the indifference of the people on the one hand and want of funds on the part of the Government, nothing has been done in India with regard to the improvement of its sanitation commensurate with the importance of the subject. But serious questions such as plague, the increasing death-rate and the comparatively slow growth of population have kindled interest in sanitary questions which, we hope, will be constantly kept alive. In cities and towns, in spite of the traditional prejudice against the enforcement of sanitary rules and laws, vigorous efforts are being made to improve the existing state of things. But, perhaps, as regards rural sanitation and the improvement of urban areas, the one question which faces us is the want of funds. Many a proposal of reform has had to be shelved, not that the conditions allowed it but because the wherewithal to carry it into practice has been lacking. It was, therefore, with pleasure that we read in the Hon'ble Mr. Baker's Financial Statement for 1908-1909 that a sum of thirty lakhs has been set apart as an annually recurring amount for the improvement of public health with special reference to the prevention of plague. Thirty lakhs for the whole of India is indeed a most inadequate provision. But a good beginning has been made. The sums assigned to each of the Provinces are as shown below :—

	Rs.
Madras	3,50,000
Bombay	4,50,000
Bengal	4,50,000
United Provinces	5,00,000
Punjab	4,00,000
Burma	3,00,000
Central Provinces	2,00,000
Eastern Bengal and Assam	3,00,000
North West Frontier Province	50,000

It is a matter for congratulation that the Government of India have made this wholesome departure. In making the announcement the Hon'ble Mr. Baker, the Finance Minister, used words of hope. He

assures us that the Government of India attach great importance to the subject of sanitation. He admits that "hitherto comparatively little has been done in this direction, and it is sometimes made a reproach against us that no organized effort has been made to improve the sanitary conditions in which the people live. The continued prevalence of plague, and the special measures which have been concerted to combat it, have brought this question into exceptional prominence. In those measures there is reason to hope for the co-operation of the people in a degree which has not previously been attained; and notwithstanding the present pressing need for economy, we believe that it will be politic to give a tangible proof of our sympathy in the form of some special assistance from Imperial funds. Apart from expenditure of this nature, which will not, we trust, be of a permanent character, there is room for almost unlimited outlay of the most beneficial description in reforming the sanitary arrangements of the larger towns. The necessity for financial assistance to enable these to achieve a sanitary standard less primitive than at present prevails has been pressed upon us by more than one of the Local Governments."

It is an augury of good that the Government have resolved to raise the sanitary standard. We hope that in coming years they will increase the allotment, so that it may induce the people to realise the value of good sanitation as an essential condition of a civilised and prosperous existence.

We commend to our readers the following interesting lecture delivered by Mr. A. M. Masilamani Mudaliar, L.M.S., at the first Annual Meeting of the Royapuram Medical Students' Association, held on 21st March 1903, in the Muthialpet High School Hall.

GENTLEMEN,

I thank the members of this Association for having done me the honour of occupying the chair on this occasion. I have a claim to it as I am second to none among the so many that have extended their love, sympathy and support to the class of undergraduates in Medicine.

I beg of every one here to treat me with leniency while I address a few words to the members of this Association, who are still students proper or who have just passed out and are about to enter on another phase of studentship. For you must understand that Medical men are all their life 'students', closely watching the changes, corrections and advancements which are daily pouring into their vast field. It is a wide field and to keep ourselves fully informed in its various branches requires very close study. Those of you who have completed the course of study at a school, consist of mere raw material full of life and growth, full of energy

and capability and full of theoretical and some practical knowledge. I would ask you to turn all your knowledge to the best account possible, the best in the interest of your patient and best in the interest of law, of justice and of order. The great sage Tiruvalluvar says "கற்க கசடற கற்பவை யெலாம் கற்றபின் கிற்க அதற்குதக", i.e., after learning well all that you ought to learn, act according to the knowledge gained. Above all this knowledge, far above it, far richer and by far the greatest wealth you should possess is the knowledge of your responsibility to the patient and of the great sympathy you should evince towards him. Understand, gentlemen, once for all that these patients are placed by God under your care. Are we not doing 'கிமித்த மாதாம் பவ' occupying but the honorary post accorded to Partha by Srikrishna in the Battle of Kurukshetra? Whatever we do to the sufferer, we do at His bidding, we do by His grace, we do under His blessing, and whatever the result, is His. It will take some time for young men like you to realize this law pervading the universe. But now I can only assure you that it is exactly so. "Man dresses and God cures" and I would modify it as "Man dresses to the dictation of God and God cures." Such a sacred duty you have taken upon yourself and apart from what you may be paid in earthly money for your work, i.e., irrespective of the amount of remuneration, you should do that duty with all the zeal, intelligence and patience at your command. The work of treating a patient is a virtue and itself is its reward. Do not attempt to weigh work and wages with your imperfect human scales. This work is too dignified to be treated in that manner. Very few of you will have the fortune to feel satisfied at the wages paid to your work, but believe me and I earnestly beg of you to believe me that reward for our work as Medical men will be hereafter; the reward here is but nominal. One quality which I would ask every one of you to cultivate is never to feel disappointed, in other words never, never, expect.

On behalf of this Association I thank Mr. Srinivasa Raghavachari for his lecture. He has taken much pains and I hope he will continue to gather all the literature regarding this disease and give us further notes on the very same disease next year about this time. I hope also that he would for our benefit keep notes of kala-azar cases which come under his care.

We have yet to know more about kala-azar. I do not think quinine has any effect for the better on these cases. So far, the use of quinine has not been encouraging.

I hope that a meeting like this would become an annual affair if at least for improving our knowledge of each other. We should meet and

pledge to do nothing in thought, word or action unworthy towards each other. Young men, learn please and learn well, never to speak of any Medical man in any but the most considerate and affectionate terms. You may differ in professional opinion regarding a particular case, but you shall not on that account run the other down and show up all his weaknesses. Weaknesses we all have. Specially must I beg of the New Curriculum Hospital Assistants not to look down upon the Old Curriculum Hospital Assistants. I would go further and ask you that as Medical men you are not to speak ill of any person in the world. Our duty is quite plain and quite wide enough in any place and let us not take upon ourselves to dictate to or correct any body. Our profession must be above all reproach of any kind. Wherever you be, stand clearly aloof from all parties, cliques and consider that "your country is the world and your religion is to do good."

Please allow me to tell you that you should never utter a rash word, never put on an angry attitude to even the most troublesome patient. Practice this patiently and your short temper will become unduly long till you bear even a kick from a patient with grace.

Do not labour under the wrong impression that good knowledge and sufficient merit would make you at once a successful Medical man. To be a successful practitioner, you want other qualities which in those that do not unfortunately possess must be cultivated with perseverance and patience.

Allow me to put before you a few points.

You must understand that your patient is your patron. Please him by all means. Be kind. Be very patient with him. Treat him very gently, never be off handed, rough or indifferent. Pay all consideration and attention to him. Sit and sympathise with him if necessary. Be always honest. Tell him no professional lies. Do not intentionally make a typhoid of a malarial fever. Do not write your prescriptions in Hieroglyphics or in letters or in figures that could be deciphered only at appointed places by appointed persons. You belong to a noble profession, my young men, do not get into these bad ways. Do not sell the dignity of your profession. Treat the poor and treat them equally well and do not receive any fees from them. Give always honest certificates of wounds, deaths, wills, sicknesses, etc., If you follow these lines of advice I assure you that even if you are not naturally a very intelligent doctor you will be surely a very successful one.

Gentlemen, I am not blind to the fact that advices do not go to make a man. Every man is capable of giving advice but here even I consider I

have done a duty I owe you and the profession, I am proud to belong to and proud also that all of you belong to.

A word more : this noble profession was born and developed in 600 B.C. in this ancient land of ours. It has come back to us now with fresh life and full vigour. We are in a way the rightful owners of this science and is it we that should hesitate to practise it most humanely and most honestly? Do you know that in our land Osteology was studied in 600 B.C.? Do you know that each bone was picked up and described then? Do you know that puncturing a vein was practised on dead animals and stems of water lilies as early as 600 B.C. Now, and now at least will you promise to take up this profession seriously and bring honour and credit to the school which educated you. Last of all, and not the least important of all that you should be told, I should like to place before you what was so often placed before you, and what I or any person in my position would not be tired of placing before you, and above all what you have learnt to place and always place before you to constantly guide you in your Medical career. My good old Inspection, Palpation, Percussion and Auscultation of the internal organs, each method praiseworthy in its own way, should be applied faithfully in the order mentioned. These added to the history carefully drawn, symptoms thoughtfully collected, will bring you a diagnosis very faithfully made. Thus armed and not until you are so well armed are you in a position to employ the treatment to the disease that is 'rational therapeutics?' Rational because it is based on reason. Rational because the action and reaction of each drug or other remedial measure are worked out. Rational because no set prescriptions are blindly followed. Rational because it is in consonance with the general plan of campaign laid down by our professors, our elders in the field and other great men of the world. Rational because no one stereotyped line of treatment by itself is followed as treatment by similars, treatment by opposites, the Brumonian system of treatment by corroborants, treatment by venesection, Hydropathic treatment, &c. Rational because attention is paid not only to the drug but also to the diet, the climate, the surrounding and even to the pecuniary circumstances of the patient. Rational, because the treatment to the same disease is not the same in every instance but is modified to suit each individual case. Rational because it is the same to the patient that pays and to the patient that does not pay you. "Rational treatment is so bold a method and yet so safe, so self critical, and even sceptical, yet so thorough and successful." From the thick forest of empiricism, this science of medicine has emerged and now has become a bright sun in the open day of science and let us be worthy workers in such a field and when we throw down our pickaxe and crowbar nobody

shall say we have not honestly toiled. It is time and I must conclude. Please remember my concluding words; in them is embodied the philosophy of the wise sages. Make no difference of caste, creed or colour. Do not we see that disease and death treat all equally? They do not respect persons. Disease and death are our great teachers of the principle of Samatva or equality. We are all sons of the same father.

OUR BOOK-SHELF.

Hand-book of Clinical Microscopy.

BY

M. KESAVA PAI, M. B., C. M., Asst.-Surgeon, Madras Medical Department, and P. S. RAMACHANDRA IYER, Sub-Assl. Surgeon, Mysore Medical Service. Printed at the *Times Press*, Bombay. Price Rs. 3-8-0.

The object of this hand-book is to supply a want which has long been felt by Medical men in India, especially those of the subordinate class. This little work supplies the needs of Indian students on Clinical Microscopy. The arrangement of the microbes and parasites is brief and clear and contains, in short, all the instructions on practical and clinical methods of diagnosis, which can be followed by any Medical man or student who cannot afford a large work, but who wishes to know something about microscopy.

This book contains (1) A microscopic study of Pathological products; (2) the method of diagnosing certain bacterial diseases; (3) an elementary knowledge of the part played by certain insects in the propagation of disease with the developmental stages of the parasites in their insect hosts; (4) a rudimentary instruction in general bacteriology.

The illustrations are small in size, numerous, and possess the virtues of simplicity and teaching value.

The book serves as a valuable guide to Medical students and General Practitioners.

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Original Articles.

*A SERIES OF CASES OF SOLID AND CYSTIC TUMOURS OF OVARY, ILLUSTRATING ALSO PRIMARY MALIGNANT OVARIAN DISEASE.

BY

DRS. M. P. VERRAWALLA AND F. G. BUSHNELL.



FROM a pathological standpoint we note (1) that ovarian neoplasms usually affect both organs, though the stage of disease is more advanced in one than in the other.

(2) The epithelial cells of carcinoma of ovary are derived from the cells lining the Graafian follicles and from the cells derived from the "germ epithelium" (so called) of the surface.

(3) The ovaries are frequently the seat of previous morbid benign changes.

(4) Carcinoma of the ovary is more frequently primary than is usually taught (BLAND SUTTON).¹

(5) Carcinomata sarcomata of ovary shew transitions from low infectivity to high malignancy.

An interesting suggestion is made by Dr. A. L. MC ILROY² based on a paper DR. STEVENS³, who describes the gradual transformation of the spindle-shaped connective tissue cells into the more cubical cells of the membrana granulosa with their radial arrangement. DR. MC ILROY

* Specially contributed to *The Antiseptic*.

1. BLAND SUTTON—A clinical lecture on secondary (metastatic) carcinoma of the ovaries.—*Brit. Med. Jour.*, May 26, 1906.

2. A. L. MC ILROY—*Jour. of Obstetrics & Gynaecology of the British Empire*, October 1906.

3. STEVENS.—The Fate of the Ovum and Graafian Follicle in Præ-Menstrual Life.—*Jour. of Obstetrics & Gynaecology of the British Empire*, Vol. V.

reasons that, if these connective tissue cells in the embryo can under the influence of the germ cell or ovum take on the characters of epithelial cells, then the cells of the stroma can also take on a similar character when exposed to the influence of elements which have imitated the characters of these germ cells (the cells of the surface epithelium). There is then a possibility of a mesoblastic as well as an epiblastic origin for cancer cell tissue. The precise nature of the biogenetic influence of these growths is unknown.

Sarcoma of Ovary and Early Carcinoma of Pylorus.

H. C.—35 years.—“Twisted ovarian tumour” under the care of MR. VERRAWALLA. Admitted to the Sussex County Hospital, 5-12-1904.

(Clinical note mislaid.)

Patient	Age	Disease	History	Menstrual	Clinical	Result	Pathology Note	Institution	Medical Officer	Date of admission
	47	Carcinoma of ovary.	Married 3 children.	She was regular up to 8 years ago. Irregular since.	Patient's mother died of cancer of both breasts 18 months ago she began to have great pain or walking under exertion the pain shooting down the leg. There was a yellowish offensive vaginal discharge for some months, with dragging pain during micturition. Operation. There was some free fluid in abdomen. A large ovarian cyst was tapped, letting out 40 ozs. of blood-stained fluid; the cyst wall was adherent to the anterior surface of the uterus and broad ligament. The cyst was removed and there was a recurrence in 5 weeks. (Ovarian Cyst).	Recurrent.	The cyst consists of a papillary masses portion and a soft portion of the mass composed of brain matter. The former has a dense fibrous stroma which is everywhere invaded by columns of irregularly shaped carcinoma cells. The soft part is of similar structure except that the fibrous tissue is young and the epithelium is multilaminated and atypical. The orifice shows carcinoma within its lumen.	Women's Hospital.		

Report by DR. BUSHNELL, Dec. 6, 1904.—This is a solid and cystic ovarian tumour. On section it looks homogeneous and pink in colour, and cuts rather firmly. One cyst, the largest, is lined with a smooth wall and beneath this the tissue resembles that of the ovary; it is mottled, of a dull white and deep red colour irregularly. The surface of the tumour is rough, and the peritoneal coat is deep or brightly coloured, opaque and with patch of adherent lymph. This contains streptococci and colour like bacilli. The section shews a round cell sarcoma, with interstitial and subperitoneal hæmorrhages.

The pylorus shews a glandular carcinoma which has affected the lymph glands of lesser curvature and has undergone colloid changes.

Fibromyoma of Ovary.

C. M.—54.—Admitted on 15-1-'07 under Mr. PALEY for uterine fibroid metrorrhagia; for 2 years before that periods were quite regular. No pain or trouble with micturition. One child 30 years ago.

Nodular freely movable masses felt per abdomen. Operation 19-2-'07 by Mr. PALEY. Hard knobby tumour of right ovary found. Left ovary was found to be bound down on floor of pelvis by dense adhesions. It was larger than normal; the posterior surface of uterus was studded with small white shotty points.

The tumour is about the size of a man's fist with irregular surface. It was non-vascular, and here and there were blood vessels with well formed walls.

MICROSCOPICAL REPORT BY DR. BUSHNELL—26-2-'07. This is a fibromyoma, and in no place is sarcoma tissue found. The cells are long and have tapering nuclei, some being flatter and some plumper than those forming the large proportion of the growth. The bundles interlace, and in section the nucleus is irregular in shape. The surface is covered with columnar epithelium and in places is nodular.

F. G.—27.—Admitted under Mr. FURNER 4-1-'05. Married. First child four months previously. Labour difficult; instruments used. Catamenia started 5 weeks after the baby was born, and patient has been regular since, but discharge more copious than before. The periods last about 1 week. Examination of abdomen reveals a large tumour extending from pelvis to ensiform cartilage. Tumour is round, hard and sulcated.

P. V. The tumour is connected with the uterus. Another swelling is found in Douglas' pouch.

17-1-05.—Operation by Mr. Fyfe. The tumour was found to be a solid one of right ovary. Weight 7½ lbs. that this gr.

REPORT BY DR. BUSHNELL, 20-1-'05.—This is a fibroma of ovary with oedematous and myxomatous changes; some involuntary muscle tissue is present. The ampulla and one inch of oviduct and portion of broad ligament is attached. The growth is spheroidal in form, firm generally, but soft in places, heavy and smooth, with some warty flat growths on surface, especially on upper half. Pole to pole it measures $9\frac{1}{2}$ in. and the circumference in the long axis is $22\frac{1}{2}$ in. maximum breadth $7\frac{1}{2}$ in. from side to side; circumference $17\frac{5}{8}$ in. and maximum depth $5\frac{1}{4}$ in. There is a hard area $4\frac{1}{2}$ in. $\times$ $4\frac{1}{2}$ in. below centre. The surface is whitish with fine blood vessels on it.

REPORT BY DR. BUSHNELL, 22-1-'05. The microscopic appearance confirms that of the naked eye. The bulk of the tumour consists of stellate cells with intercellular substance which stains poorly; in places are wavy bands of connective tissue with flat cells giving the section a sheen as of "watered silk" from reflected light and shadow. In places there are muscle cells with rod shaped nuclei. The vessels are few and lymphatics are dilated on surface. The cellular element is in excess in superficial layer. Section through a wart shows a core of cellular connective tissue with cells of varying shape and character and a covering layer of cuboidal cells several layers deep, in places single and columnar and mucoid. There is no ovarian gland tissue or malignant change noted, but the papillomata may be possessed of local infectivity.

Carcinoma of Ovaries and Peritoneum.

A. S. æt. 49 years.—Admitted 25-9-'07 under the care of Mr. Jowers, with "pains in stomach and down the legs."

For previous 3 months patient has not felt well, and a fortnight previously felt a stabbing pain in right iliac fossa which has gradually got worse; a week ago had shooting pain down inside of both legs. Eight weeks ago patient noticed a swelling in abdomen which has increased rather rapidly in size during last fortnight.

Micturition.—For a month past has had difficulty in passing water and it has dribbled away.

Menstrual history.—Meno-pause began 10 years ago, always regular and moderate periods. Leucorrhœa came on a fortnight ago.

Has been losing much weight during last 2 weeks and appetite has quite failed.

Abdomen.—Marked fullness of flanks and lower abdomen. Veins shew up on abdominal wall. Shifting dullness on percussion in flanks. Dull to $2\frac{1}{2}$ in. above symphysis. just felt by deep pressure. Patient's sides of symphysis.

P. V.—The cervix is far back; in front and continuous with it is a hard tumour.

Operation 1-10-'07 by Mr. JOWERS. Both ovaries the seat of papillomatous malignant disease adherent to uterus and to wall of pelvis. Both ovaries removed and as much malignant growth as possible.

21-10-'07—An operation for intestinal obstruction was performed. Died 27-10-'07.

REPORT BY DR. BUSHNELL, 14-10-'07. Three portions of solid and cystic malignant papillary ovarian cystoma, to one of which the oviduct is attached. Lymph adheres to the surface. The papillæ vary in size from low warts to fringe-like growths. The cysts contain pinkish white or yellowish soft material. Sections from seven different areas shew carcinoma, the cells of which are cubical and the stroma well developed. It shews evidence of a "tubular" or "follicular" origin. In places are solid areas of flat cells; there are also seen cells in ring forms, surrounding vacuolated, nucleated masses protoplasm. Some areas are of adenomatous-like structure, but there are no goblet (pseudo-mucinous) cells as in cystadenoma. Colloid changes are present and masses of densely staining character.

Cystic Adenofibroma of Ovary with Intra-cystic Growths.

Mrs. K. 50.—Mr. Jourdes, May 1906. The account given is that there was a long history of the pelvic trouble. Since an operation in 1906 there has been pain, but no recurrence detected.

PATHOLOGICAL REPORT, MAY 1906, BY DR. BUSHNELL.—"Solid and cystic tumour of 2 broad ligaments; uterus with polypi of mucosa, and fibroids."

The solid part of the tumour is 14 cm. long and has a maximum girth of 31.5 cm. There is attached to it a congerie of cysts with smooth, yellow walls and containing e. yellowish glairy fluid. They are of very varying size. The solid portion has small cysts in places and is attached to left broad ligament. Microscopically it consists of epithelial lined tubules in large numbers in a fibromatous stroma. There are many intra-cystic papillary growths with great proliferation of the epithelium covering their surfaces.

Of the sections DR. WILLIAMSON says:—"The only positive microscopic evidence of malignancy, viz., invasion and destruction of the stroma by the epithelial cells cannot be clearly demonstrated. I have not the least hesitation in giving the opinion, that this growth is also malignant."

C. I.—æt. 60 years.—Admitted to the Home Dispensary under the care of DR. RYDING MARSH, 18th October 1906, for general abdominal pain and increase in size of abdomen.

Twenty years previously SIR SPENCER WELLS and MR. CHAMPNEYS diagnosed 'fibroids.'

Three years ago DR. MARSH confirmed the diagnosis and a year ago patient had a hemiplegia from which she recovered. On examination prolapse of the rectum and a hard mass filling up pelvis and ascites was found. Operation by DR. MARSH, October, 20th. Tumour of uterus reaching to umbilicus very hard and nobby, was removed; it had a thick vascular attachment to rectum and there was 2-3 parts of ascitic fluid present. The tissue attaching it to rectum resembled a cancerous growth. There was a small warty growth on the peritoneal surface of the bladder.

REPORT BY DR. BUSHNELL.—October, 25th, 1906:—Uterus and growths of stony hardness which prove to be sub-peritoneal fibromyomata. No sarcomatous change found. The ovaries are the seat of the papillary form of carcinoma. The stroma is penetrated by epithelium in places and has an alveolar arrangement and has undergone mucoid degeneration.

DR. WILLIAMSON regarded the sections as an undoubted ovarian carcinoma; the stroma being widely invaded by "atypical epithelial cells arranged in the form of irregular tubules and masses." The remains of old corpora lutea were found in the stroma.

NOTE BY DR. ROBSON:—Patient died April 15th, 1907, from cancer of peritoneum and pericardium with ascites.

Fibromyoma of Ovary.

A de F.—æt 40 years—Admitted 12-5-'05 under the care of MR. T. H. JOURDES.

Patient was ill six years ago with diarrhoea and neuralgia in occipital region. She noticed an enlarged vein over pubes last August and then a lump. For last 3 months she has had to pass water very often, especially when walking about. Action of bowels loose, but occasionally constipated, with great difficulty in passing the motions.

Catamenia.—Regular, duration four days; nothing abnormal except that there has been no period for 7 weeks.

Above pubes and reaching to within 3 fingers breadth of umbilicus is a hard movable lump, which is in mid line. The tumour is a subperitoneal fibroid.

16-5-'05.—Operation by Mr. Jourdes.—Tumour was found to be a solid ovarian on the right side. The uterus had a small subperitoneal fibroid on it. On naked eye examination of tumour, it seems to be fibromyomatous in nature.

REPORT BY DR. BUSHNELL.—16-5-'05.—This is a fibromyoma undergoing sarcomatous changes. It is a firm encapsulated rounded tumour weighing 1½ lbs. after preservation and measuring 13.5 × 12.5 × 9.5 cm. with a maximum girth of 33 cm. It shews on section a lobulated and reticulated aspect, with septa of white fibrous tissue. No sign of ovarian tissue can be seen, and it is not homogeneous on section.

Microscopically the tumour is composed of fibrous and unstriped muscle cells, with sarcomatous round cell areas. It is not very vascular but viens course on the capsule.

Fibromata of Ovaries.

L. G.—39—Admitted under the care of MR. JOWERS, 1-2-'06, for fissure and pain on defecation. Has been suffering for a considerable time with pain on passing her motion; no blood noticed. Periods regular.

No abnormality of rectum found.

P. V.—A lump is felt in pouch of Douglas rather to the left side, tense, hard and not very mobile.

Feb. 11-'06.—Operation by Mr. Jowers.—Ovarian cyst about size of Tangerine orange removed from right side with the ovary. Smaller cyst also removed from left side with part of the ovary. The left ovary is enlarged and rather hard, a piece of which containing a hard nodule being removed for examination.

REPORT BY DR. BUSHNELL.—These are loose meshed fibromata. The smaller and denser one contains a cavity, in which columns of fibroid tissue covered with low epithelium are seen in section. The larger and looser meshed one is covered in part with several layers of subcolumnar and cuboid epithelium. The cells of the connective tissue are small, dense and long. 19-2-'06.

Carcinoma of Ovaries.

Miss A.—30 years.—No pregnancies.—The patient was regular up to August 1906. She was irregular since and almost continuously up to May 1907. Uterus was curetted in May 1907. "Fibroid" material removed. Left ovary was found to be enlarged. The bleeding returned three months later with severe loss.

Operation, September 28th, 1907.—There was chocolate coloured free fluid in peritoneal cavity. There was a large multiloculated cyst of left ovary which was removed. The right ovary was enlarged and hard with hæmorrhagic areas. *Remarks.*—No abdominal swelling was noted in May last, but before operation in September there was felt a softish mass in abdomen rising up to umbilicus.

Pathological Note, (p. 13 & 5).—There is a blood cyst with "brainy" material in the multilocular cyst of the right side. The soft material consists of columnar cell carcinoma. The growth suggests a tubular origin and has a well formed stroma. The cyst walls are of cellular and fibrous tissue, and the smooth inner surfaces are lined by flat cells. As a rule the cysts do not communicate and contain blood stained brain like material, and one contains intracystic papillary growths. The outer surface is nodular, rough, with adherent shreds. It measures 8×12 cm. There is much necrosis. The left ovary is cystic and the spaces are lined with rounded cells in several layers or by flat cells. They contain granular material. The stroma contains spindle and rod shaped cells, and is cedematous. One area is carcinomatous. There is also a small fibromyoma of uterus.

Carcinoma of Ovaries.

R. C.—58 years. —Admitted to the Womens' Hospital under the care of MR. T. H. JOURDES. The meno-pause was 6 years ago; she has had nine pregnancies and no miscarriages. The first symptom was a feeling of fullness in the abdomen 3 months before operation. Five weeks ago she had a fairly severe attack of pain in the abdomen, chiefly on the left side, with attacks of vomiting and constipation. She has not noticed any loss of flesh up to 3 weeks before operation. The abdomen was growing bigger. The urine was normal. There was no blood passed per rectum.

Abdomen.—Loculated fluid in right half of abdomen from pelvis to ribs. No solid mass was felt P. V. or P. R., but a hard round mass of the size of a Tangerine orange was noted in Douglas' pouch. The rectum was surrounded by an irregular hard mass.

Operation.—Several pints of clear fluid was free in the abdomen. Both the ovaries were cystic and of the size of Tangerine oranges. They were removed. The pedicles, tubes, pylori, peritonium, rectum and sigmoid were covered with hard scattered papillomatous growth.

Pathology. Notes.—(1) The smaller cystic and "papillomatous" growth is carcinomatous. The cells are rounded and there is little stroma. (2)

The cystic ovary is carcinomatous and has intra-cystic growths. The cells are undergoing mucoid and line the intra-cystic projections in layers of 6-10; (3) The oviduct is invaded and compressed by carcinoma.

Endothelioma of Ovary.

L. G.—33 years: single.—The menstrual history began at 16 years. For 3 years up to June 1906 patient had only one period. In June she had another profuse flow and has continued irregular since. The patient is anæmic. There is a tumour about the size of a cocoanut rising from the pelvis and a hard mass is felt in Douglas' pouch. The tumour was found at operation to be adherent to omentum. Five months after operation the patient was feeling fit and free from pelvic trouble on examination.

Pathology Note.—This is a malignant tumour of ovary. It consists of small epithelial like cells arranged mainly in narrow tubules which are hæmorrhagic and necrotic and of brainy consistency in places. The stroma is cellular.

Carcinoma of Ovary.

Miss A.—47 years; married.—The patient was regular up to 5 months before operation. Since then the periods have ceased. She has not been pregnant. She has felt weaker for 8 months; no pain or loss of appetite. She has sensation of weight and bearing down in pelvis. She has had increasing difficulty in emptying bladder and rectum. She had an attack of retention of urine on September 3rd which was relieved by catheter and the tumour was then discovered, patient having no idea of its presence before.

Operation.—There was a large solid tumour of the ovary, globular but irregular with hæmorrhagic and necrotic areas which was removed. There was some free fluid in abdomen but no adhesions. Patient did well after operation.

Pathology Notes.—This is a malignant tumour of carcinomatous structure. It is characterised by a large amount of fibrous stroma which is inflamed and necrotic in places. No Graafian follicles are seen. It is solid with yellowish and red capsules and smooth irregular surface. There are coarse strands of fibrous tissue with hæmorrhagic and caseous areas on section, also cystic areas. It measures 5 cm. × 2.5 cm. × 3 cm. and retains the shape of the ovary. Its cells have large pale staining nuclei and single nucleole and are dropsical. The cysts are lined with similar cells, one or more layers in depth, into which hæmorrhage has occurred. The cells are arranged in 'ring like' forms or in columns adherent to delicate fibrous cells. The stroma is cellular and hemorrhagic and contains

pigmented and plasma cells. There is a zone of leucocytes before the advancing carcinoma. Beneath the surface the stroma is hyaline with minute spaces in it.

• RHEUMATISM AND GOUT.

BY

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Dehra Dun.

[Continued from page 73, Vol. V of *The Antiseptic*.]

CHRONIC RHEUMATISM. This may be either a sequel of the acute disease, or the disorder may from the onset assume a lingering form, the constitutional symptoms being slight. The affection may show itself in the joints, giving rise to stiffness, dull aching, pain produced by motion, but without heat or very obvious swelling, tenderness, and febrile excitement, or marked sweating; or it may implicate the muscles in various parts of the body, occasioning stiffness, as well as pain when they are moved; or it may attack both joints and muscles: or it may be seated chiefly in the sheaths of nerves, leading to what is called neuralgic rheumatism, of which, for instance, sciatica often affords a striking example. In any case, the occurrence of the pain furnishes the starting point in diagnosis, and we must ascertain, by careful examination, whether it be augmented by motion, whether it be more or less shifting, whether it be not combined with stiffness either of the muscles or of the joints, whether it be influenced by changes of temperature, whether it be not neuralgic, or associated with a disturbance of some viscus, such as of the liver or kidneys, before we conclude that the complaint is really rheumatic. This is especially necessary in the most common form of chronic rheumatism, namely muscular rheumatism. All kinds of pains in the muscles or their surroundings, the cause of which is not at once apparent, are apt to be pronounced rheumatic. And indeed it is not always easy to say whether they are or are not of that character. We may distinguish them from the anguish of neuralgia by the pain in the latter complaint being ordinarily confined to the distribution of one nerve and not being increased by movement or by pressure; nor is it so firm, or attended with soreness, except over a few spots at some distance from one another in the course of the affected nerve. As regards the pains caused by organic structural disease, we can generally discriminate them from those of rheumatism by close attention to the history of the case, and by a careful exploration of the internal organs. Thus, for instance, we shall find pain radiating from the right hypochondrium to the

• Specially contributed to *The Antiseptic*.

shoulder to be dependent upon hepatic disease; or pain shooting down to the groin, thigh, and testis to be caused by a disturbance of the kidney; or a bearing down and an aching near the sacrum, to be probably due to uterine disorder. Muscular rheumatism may affect the neck, the scalp, the muscles of the face, and the parietes of the chest or of the abdomen. It may be not only chronic in any of these situations, but also acute; or, what is more frequent, when it occurs with fever, and is transient, it is a sudden acute exacerbation in persons who are rheumatic and suffer more or less persistently from rheumatism, though perhaps in a different part of the body from the one in which the acute affection has happened. One of the most common seats of muscular rheumatism is the loins. It then constitutes the disease known as lumbago or lumbodynia. The patient is unable to stand erect, and finds it nearly impossible to stoop forward, on account of the severe pain occasioned when the muscles of the back are called into action. Unless the attack be very severe or acute, there is no constitutional disturbance; but the disorder is often obstinate. It is easy of recognition. We distinguish it from pain in the loins due to disease of the kidneys (Bright's disease), chiefly by an examination of the urine which contains a substance called albumen, and by the different way in which movement affects the rheumatic pain; from lumbo-abdominal neuralgia, by the two or three sore spots in the course of the affected nerve; from rheumatism of the vertebral articulations, by the absence of tenderness and swelling around the spinous processes; from lumbar-abscess, by the want of local bulging or fulness of fluctuation, and of fever. Then, we must be careful not to consider as lumbago the pain in the back caused by disease of the spine, or by disorder of the uterus, or by the passage of abnormal urinary constituents, such as oxalate of lime, or consequent upon strains, or blows, or scurvy, or malaria or anæmia or a general or local muscular debility. Thus there are many causes of pain in the loins, and where the case is of any duration or of any doubt we must not rest satisfied until we have excluded these causes from consideration before we assume the disease to be really rheumatism of the muscles and fasciæ of the back. This caution is very necessary in investigating the cases of "weak back" so prevalent among men in military service, which, though commonly spoken of as rheumatic, are really, for the most part, due to strains or injuries which have perhaps produced a weakness of the muscles and a persistent cutaneous hyperæsthesia or excessive sensibility; or to an impoverished state of the blood, to neuralgia, to scurvy; or to digestive disorders attended with the passage from the kidneys of large amounts of urates or of oxalate of lime. The remarks made with reference to this form of muscular rheumatism

and the conditions which simulate it are also applicable to pains apparently muscular, affecting other portions of the body. We may have pain and soreness of the muscles developed by strain or overwork and attended both with muscular and with cutaneous hyperæsthesia,—a state very different from rheumatism, and designated by ISMAN "myalgia," ordinarily known by the name of cramp, and frequently mistaken for neuralgia. This soreness of the muscles is thought to be always in direct proportion to the debility of the muscular system, and is chiefly caused by long continued exertion beyond the power of the muscles, or by a very ordinary amount of action when the muscles themselves or the individual is extremely debilitated. The morbid state is most marked during the convalescence from exanthematous fever, where it may be looked upon as due to over-exertion of the weakened muscles. The soreness of the muscles is almost constantly accompanied by heightened sensibility of the skin over them; and this co-existing cutaneous tenderness may be in any case regarded as an important diagnostic sign. Myalgia is chiefly found in the muscles of the trunk, and is not apt to be very general. Another form of muscular rheumatism to which we may here allude to is the Wry-Neck, or Torticollis. This depends chiefly upon contraction of the sterno-mastoid muscle of one side of the neck, and occasions the ungainly appearance with which most persons are familiar. But we must be careful not to consider every case as of rheumatic origin. The disorder may be spastic, or may depend upon nervous injury, and when chronic may lead to alteration in the muscular structure. Pain in the muscles and stiffness may be caused by still other conditions than those described, and be mistaken for muscular rheumatism,—the muscular pains of Trichiniasis. But the marked exhaustion and the signs of gastro-intestinal catarrh are of such significance that they save us from error. A form of chronic rheumatism which also may be briefly mentioned is that affecting chiefly the fibrous membranes, such as the periosteum. This becomes thick and tender on pressure; its thickening may even be very perceptible to the touch as well as to the eye. This kind of rheumatism happens in those who have had syphilis; but it also occurs where no such taint exists, the pains are generally much more severe at night; and this is sometimes assumed to be a proof of the syphilitic character of the disease. But incorrectly so; for many varieties of chronic rheumatism are aggravated by the warmth of the bed. Indeed, the only really diagnostic signs of syphilitic rheumatism are the obvious evidences of constitutional syphilis, or the history of the infection, still, to cases in which several nodes exist, and in which the pains more particularly affect the long and flat bones, and in which Iodide of Potassium speedily modifies the pains.

We shall be rarely wrong in attributing the affection to a syphilitic origin. Chronic rheumatism is often feigned, especially by malingerers in the army and the navy, and the deception may be difficult of detection. They pretend to be scarcely able to walk or hobble around with a stick, and complain much of the pain and stiffness in their joints, yet there is not the least sign of deformity or real stiffness; the pain is always stated to be the same; and their general health is excellent. Their way of using the stick, too, is characteristic; they move it each time they move the seemingly affected leg, but, as a rule not immediately, thus not employing it as a support. Anæsthetics are of great value in enabling us to decide as to the real amount of immobility of the limb, Gout or Podagra. This disease, so closely allied to rheumatism, from the humoral pathology and suggesting the dropping of a morbid fluid into the joints, may be like the latter, either acute or chronic. Instead of describing its phenomena or appearance, we shall at once point out the marks of difference between the two maladies. In gout, the small joints are chiefly or alone affected; in rheumatism, the larger joints. The gouty inflammation is accompanied by more local pain and redness than the rheumatic, and by œdema, enlargement of the veins, and desquamation of the cuticle, and implicates, at least at first, only one or a few joints especially the metatarsophalangeal articulation of the great toe; while rheumatism attacks the joints of the upper as well as of the lower extremities. In gout there is a tendency to disease of the kidneys, with a moderate febrile disturbance, and no profuse sweats; but we meet with no cardiac complication, at least no valvular affection, as so constantly happens in rheumatism; its early attacks are apt to recur with a certain amount of periodicity, and last above a week,—therefore a much shorter time than those of rheumatic fever. During the paroxysm of gout the urine is scanty, and both before the attacks and during the first days the uric acid is strikingly diminished. Gout occurs generally in those who live high or who drink large quantities of malt liquor, especially in men about middle age; while rheumatism is usually seen in the weak, is excited by cold and damp, it is as common in females as in males, and is oftener found in the young and before middle age. Gout is frequently combined with a disposition of chalk-stones (urate of soda) in the joints: rheumatism not so. Then, if we accept the observations of GARROD as conclusive, we possess an absolute means of diagnosis in the examination of the blood. Uric acid is always present in large excess in gout, and absent in rheumatism. This, should further research prove to be an invariable rule, will be a positive and invaluable diagnostic test, and will render easy of discrimination even those cases which, with the usually employed means

now at our command, are very perplexing to distinguish. Nor is the method of detecting the uric acid difficult, if we make use of GARROD'S ingenious plan. It consists in obtaining the crystals of uric acid, crystallized on a thread placed in a mixture of the serum of the blood or of the fluid from a blister with acetic acid, in the proportion of six minims of the acid to each fluid drachm of the serum. The mixture of the serum and acid with the thread in it is placed in a shallow watch-glass and allowed to stand from twenty-four to forty-eight hours, protected from the dust. Nearly all the remarks just made apply more especially to the distinction between acute gout and acute rheumatism. The chronic disorders are more difficult to separate. Indeed, unless there be external deposits or chalk-stones, their discrimination may be impossible. In these obscure cases, however, the history and an examination of the blood may throw considerable light on the diagnosis. In many subjects too, the explanation of the external ear will assist us in arriving at a correct diagnosis. We find one or several spots of deposit of urate of sodium on the helix or margin. Gouty persons are subject to indigestion, flatulency, pains and cramps, or palpitation of the heart—phenomena which are due to the gouty poison, and which are generally ameliorated by a fit of gout. Sometimes the gouty inflammation of the joints retrocedes during an attack, and severe epigastric pain, nausea, vomiting, flatulence and acidity, faintness and a feeling of sinking, and a quick, feeble pulse show that the morbid action is transferred to the stomach; or it flies to the head, and apoplexy or maniacal symptoms may occur; or to the heart, and there is violent palpitation, with difficulty of breathing, and intense anxiety; or it attacks the spinal cord, and a sense of constriction around the thorax and abdomen, and piercing pains in the limbs, like those of locomotor ataxia, are encountered, and the spinal dura mater and the roots of the spinal nerves are found to be incrustated with uric acid and urate of sodium. Now, closely connected with gout is lithæmia. Indeed, the excessive formation of lithates and the dyspeptic symptoms, with the heartburn and eructations, the signs of functional derangement of the liver, the vertigo, the mental gloom or the listlessness and indisposition to exertion, the restless nights, the palpitations of the heart, and its irregular beat, are in many but the precursors, although it may be the long precursors, of a regular outbreak of gout; while in many more this half-dyspeptic, half-nervous condition, with the faulty assimilation, the imperfect oxidation, the excessive discharge of lithates at times and their disappearance at others, will go on for years without ever developing into an attack of gout. Still, in years the same local lesions may follow in the internal organs; we may have the same

form of contracting kidney, and the heart affection with hypertrophy and the accentuated second aortic sound of the lithæmic state. The treatment of rheumatism and gout may be briefly summed up as supporting, eliminating, expectant, and local, with warm clothing and a well regulated diet. Cold applications should be avoided and a proper action of the bowels, kidneys, and skin always maintained.

Our Contemporaries.

MEDICINE.

Bilharziasis.

BY

F. M. SANDWITH, M.D., F. R. C.P.

[Abstract of a lecture delivered at the Medical Graduates' College and Polyclinic on March 16, 1908.]

BILHARZIASIS is a convenient term used for the invasion of the human body by the worm known as the *Schistosomum* or *Distomum hæmatobium*. The worm was discovered by one of my predecessors in Egypt, Bilharz, and is consequently often called by his name.

It is, as you probably all know, not the actual worm that does the harm, but its eggs. As you also know, this is a trematode worm, and the name *Distomum* indicates that it has two mouths. The male worm carries the female in the gynæcophoric canal. Besides the two mouths, there are to be noticed small tubercles all over the body of the male. It is by means of these that he makes his way along the blood-vessels: the female, having none, cannot move, and must, therefore, be carried by the male. Although the female is actually longer than the male—about 20 mm., as compared with 12 to 14—she is capable of concealing herself entirely in the gynæcophoric canal, for she is very much thinner and can double herself up.

The eggs are of two kinds, the lateral-spined and the terminal-spined, provided with a rudder wherewith to steer their passage. There has been some controversy as to whether the two varieties of egg are laid by the same individual, or even by the same species. The most widely accepted view is that of LOOSS, that the lateral-spined egg is the product of an immature female, and that such a very young mother is unable to provide a shell sufficient to enclose all the egg-contents: consequently there is a bulging produced, which alters the position of the spine. Later on, when the female has had more practice, she lays more perfect and terminal-spined eggs. Some do not accept this hypothesis, believing that there

are two different kinds of worm; I do not myself think there is very much in favour of this view.

The terminal-spined eggs are always associated with the urinary tract, whereas the others are often to be found in the alimentary system, the liver, lung, rectum, intestine, and other non-urinary places. These eggs are deposited in the urine in very large numbers, and a normal egg thus passed in bloody urine will not develop further, nor will it when milk is added to the urine. But if it is put into pure clean water at a warm temperature it will develop into a miracidium. This is an embryo worm covered all over with cilia: it has a mouth leading to an œsophagus and to excretory ducts; but the greater part of its body consists of germinal cells. There are also two glands, one on each side of the œsophagus, which open externally one on each side of the mouth. The function of these is not known, but it has been thought possible that they may secrete something which enables the miracidium to penetrate the skin.

The process of development into the adult worm has not yet been traced. It is known that the miracidium does not survive under the most favourable circumstances longer than 36 hours, and hence it is supposed that there is an intermediate host, possibly a mollusc. But despite most careful search, no such host has yet been found.

There are three ways possible by which the worm may enter the body. The most obvious is by the mouth, but there are two or three objections to this, foremost among which is the fact that the miracidium dies at once in gastric juice only a quarter of the strength of that present in the healthy human stomach. It has also been proved by experiment that the gastric juice of monkeys is immediately fatal to the miracidium when it is introduced into the stomach of one of those animals. Then the urethra and rectum have been suggested, but there is really no evidence in support of this view, and in the organs of those who are the subjects of the disease the youngest worms are found in the liver, not in the rectum or the urinary tract. There is a story that in Siam the natives believe that the worm enters by the penis, and a South African custom has also been held to show the same belief: with regard to the latter I am told, however, that the natives always remove the protective apparatus when crossing a stream, which upsets this idea, and I am quite prepared to hear from Siam that the story is equally mythical there. The third possibility is that the embryo enters by the skin: as we now know that the *Ankylostomum duodenale* and other worms enter that way, it seems less improbable than would have been thought a few years ago. The proof is still

wanting, for no one has yet felt justified in putting it to the test of experiment.

The two countries more especially concerned with Bilharziasis are Egypt and South Africa, though it is also known in Tunis, Mauritius, the Congo, Cyprus, Uganda, and other places. There is every difference between the disease in the north and in the south of Africa. In the former it is a very severe disease and frequently causes fatal complications, though I know of no reason for its greatly lessened virulence in South Africa. The disease is not so common in women as in men, but it is not really so rare in them as some of the text-books would lead one to believe. The bladder is the organ usually most infiltrated, and the result in an advanced case is a thickening of the wall which may look to the naked eye very like cancer, and, indeed, can only be recognised microscopically. In the liver it may cause cirrhosis, and should be added to the list of the agents which may produce that condition. In the rectum and colon papillomata are formed, which may slough away. Pus may run from the urethra, once supposed to be due to gonorrhœa, but now known to be often due simply to the Bilharzia. Cystitis is the rule in the bladder, and large numbers of calculi are formed there.

The incubation period is from two to four months. The parasite may be present for six or more months without giving rise to any symptoms. Natives do not trouble themselves at all about the early symptoms, regarding them as no more unusual or serious than we do bruises after a foot-ball match. One of the earliest symptoms is hæmaturia: the blood does not come with the urine, but immediately after, due to the final contraction of the bladder-wall forcing the spine of an egg into a capillary. It is in this terminal tea-spoonful of blood-infiltrated urine that you may expect to find the eggs, and not in the rest of the urine. By examining it thus you will always find eggs in a case of bladder-infection. Many things increase the hæmorrhage - exercise, drinking, and so on.

There is no pain at the beginning of the disease, but there are one or two symptoms similar to those of vesical calculus, such as pricking at the end of the penis. After that come frequent micturition, lumbar aching, incontinence, and later on a septic cystitis when germs have obtained entrance into the bladder. Papillomata and sloughs cause severe tenesmus, and enlargement of the prostate adds to these troubles.

In a rectal case there is at first only a slight discharge of mucus, and the patient generally comes complaining of piles. Besides the straining, which is also an early symptom, there then ensues prolapse, and the patient thinks he has got dysentery; indeed, his medical man often thinks

so too, for mucus, diarrhoea, tenesmus, and blood are, after all, the usual basis for such a diagnosis. These symptoms are due to infiltration of the mucous membrane near the sphincter, which is generally most affected. Then follow ulceration and pain, though the condition of the patient is not so miserable as that of him who is affected in the bladder. In the vagina large papillomatous masses are produced, and the uterus may also be affected. In the latter the appearances simulate epithelioma, and the uterus has been removed under that diagnosis.

The amount of blood lost is not enough to produce great anæmia. The usual blood-count is about 4,000,000 red corpuscles per c. m., and 80 per cent. of hæmoglobin. The eosinophils are increased, as might be expected: in a series of cases the average was found to be 16 per cent., but I have known them as high as 53 per cent.

Dangerous hæmorrhage from the bladder may so fill that organ with blood clot as to cause death from uræmia. A palpable tumour of the enlarged bladder may assist in the diagnosis of Bilharziasis.

Hydronephrosis and pyonephrosis often occur, and what used to be called surgical kidney is also seen: these are due to fibrosis or stone in the ureter producing stricture, and dilatation above it, after which comes a huge dilatation of the kidney itself. There is not usually any deposit of eggs in the kidney. Vesical calculi are common, and can be diagnosed by the sound. In the College of Surgeons Museum is one weighing 34 ounces, removed from a patient who lived for two and a half months after: the rapidity with which such stones form was shown by the removal of a second stone weighing 23 grains on the 25th day after the first operation.

Urinary fistulae are common complications, and the most important are those in the floor of the urethra. Though they are very troublesome, they can be cured by patient and appropriate surgical treatment. Cancer is not very common, considering the enormous amount of irritation set up in the organs which harbour the parasites.

The worms themselves are found in the portal vein, and can be obtained post-mortem by putting a spoon into it and scooping out the blood. From one or two to several hundred may thus be found. If none are found in the portal vein in a suspected case, the liver should be cut into sections and pressed out in water. The spleen may contain eggs, and the broad ligament and the skin have also been known to harbour them.

The prognosis is important, even in this country, because many men invalided from Africa for this disease are to be found here. The usual view held by English physicians is, I think, unnecessarily gloomy.

Unless a man is over 50, or is advanced case, he will certainly improve or get well altogether in a few years even with almost no treatment.

There are many suggested remedies which are no good: the only one which is of use is the liquid extract of male fern. Give it in 15 minim doses, but not for more than 14 days together. This drug actually reduces the number of eggs and the hæmorrhage, and also relieves the cystitis to some degree. Hæmostatic injections are positively bad. Salol, urotropin, and helmitol are all of use; and methylene blue is better still; it acts as an analgesic, but does not cure. Before I leave the question of Bilharziasis, which is almost confined to Africa, I should like just to remind you that the *Schistosomum Japonicum* is an allied worm very similar in many ways to that of which I have been speaking.—*The Hospital*.

Thread Worms.

The commonest variety of worm that attacks children is the *Oxyuris vermicularis*. It is very important to realise that thread worms are not a disease in themselves, but a symptom of an unhealthy state of the large bowel. I doubt very much whether a thread worm can exist in a bowel that is healthy. The sort of condition required is one of catarrh associated with the presence of mucus. It is in the folds of the swollen mucous membrane that the worms lodge, and to be successful in treatment this condition must be remedied.

Another difficulty is that the patient, if a child, is constantly re-infecting himself. Further, the ova are often deposited in the vermiform appendix, which forms a regular breeding place for oxyuris. When once one has seen such an appendix full of young worms, it can be realised how difficult it is to stop the constant reinfection.

This brings us to the symptoms caused by thread worms. There are certain purely local effects, such as irritation, scratching, and so on. Beyond these, it is quite possible that incontinence is sometimes due to worms, but there is much less ground for the belief common amongst mothers that picking at the nose is evidence of them. As regards pallor, abdominal pain, wasting, headache, and other vague symptoms, I am convinced that these are really due to the state of ill-health which permits the worms to flourish. It is the children who exhibit Dr. Eustace Smith's "mucous disease," or dyspepsia of the second dentition, as it is also called, that are especially liable to thread worms. The malady is characterised by several of the symptoms just named, and above all by constipation.

To get rid of the worms it is necessary to deal with this underlying condition. One can do this partly by attention to diet, partly by

medicines. It is very important to reduce the starchy constituents of the food, such as raw fruit and vegetables, bread, sweets, puddings, and sometimes even potatoes. You must also make sure of a sufficient daily action of the bowels, for which there is nothing better than :

Pulv. Rhei	..	..	..	..	gr. v.
Sod. Bicarb.	..	..	..	..	gr. v.
Hydrarg. c. Creta	..	..	..	..	gr. j.

which is peculiarly efficacious in this condition of the alimentary canal. The value of this powder is probably due to the rhubarb, which has not only an aperient, but also an astringent and tonic after-action on the mucous membrane. The grey powder has also a share in the result, for when it is omitted the combination is certainly less successful.

The powder should be given regularly for a considerable period, the aim being to produce one loose motion every morning. You may also with advantage give alkalies and bitters before meals. Iron is sometimes of benefit, but must never be given without an aperient.

Some authorities recommend santonin by the mouth for thread worms. I am not at all sure that it has any anthelmintic effect on them, and if you adopt the methods I have indicated there will be no need to use it.

To deal with the worms locally, various injections have been proposed. Infusion of quassia is an old-fashioned prescription, and a very good one; solution of common salt, in the proportion of an ounce to the pint, is another; and infusion of garlic is sometimes very effective. These may be safely used every night for a time. The following may be injected every other night for three doses with good results :

Oil of Turpentine	..	..	..	..	3ij.
Santonin	..	..	..	..	gr. ij.
Starch Mucilage	..	..	..	..	ʒvj.

There are two different systems of giving an injection for these worms. Some physicians advise a large injection so as to reach as far up the bowel as possible. Others prefer a small one that it may be retained as long as possible. My own feeling is in favour of small injections, which have the advantage that they cause much less discomfort, as the process is one which is frequently repeated; this is an important point when dealing with young children.

The injection should be given warm, and quite slowly, through a funnel. The pelvis of the patient should be raised. An injection of six ounces when given thus may in a child reach the transverse colon by

reversed peristalsis. This small quantity is safer and less likely to be painful than the larger doses; in addition, it is far less likely to damage the intestine, whose wall is thinner and more easily ruptured than is often thought.

It is well to order a little weak white precipitate or nitrate of mercury ointment for local application, to relieve itching and to prevent wandering of the worms.

I will only repeat that local measures are less important than attention to the state of the intestine, for if the worms are only killed off locally they will certainly come back, a process which has been known to continue for years.

If I have mentioned to you but a few lines of treatment this afternoon, it is because I believe that if they are thoroughly carried out, satisfactory results will always be obtained.—*The Hospital*.

Examination of the Fæces.

Dr. GEORGE H. JONES, of Toledo, discusses (*St. Louis Medical Review*, Dec., 1907) the examination of fæces in a most intelligent manner. In all gastrointestinal disorders of any severity at all, he says it should be the routine practice to examine the stools with the naked eye and with the microscope. Chemical tests for blood and for other substances may also be of advantage. The examination consists of observing (1) the form and consistence; (2) the color; (3) the odor and quality; (4) abnormal ingredients, such as mucus, pus, blood, parasites, and concretions. A stool sieve is essential when searching for gall stones, heads of tape worms, or intestinal parasites.

(1) Concerning the form and consistence, these may be altered by the rate of peristalsis, being hard when peristalsis is slow, or soft when it is very fast. The hard masses may become broken into scybala.

(2) Color. The normal stool usually is dark brown, but various foods have an influence on the color. Bismuth, iron, manganese, rhubarb, senna, santonin, kino, and hæmatoxylon are some of the drugs which may change the color of the stools. Clay colored stools indicate a lack of bile formation or an obstruction of the bile flow, but they may result from an excess of fat or from a reduction of bilirubin to a simpler compound. Green stools may be due to a rapid sweeping out of the fresh bile, or to biliverdin, or to the presence of a color forming bacterium in the intestines. Black stools if not due to drugs, are generally due to the presence of blood.

(3) Odor and quantity. Proteid decomposition is mainly responsible for the odor, and results when too much meat is eaten or when the proteids remain too long in the alimentary canal. The quantity is dependable upon the amount or kind of food taken. Vegetables have a high per centage of indigestible material. The bacteria form from one to two-thirds of the feces. Inefficient digestion, rapid peristalsis, and diminished absorption are also responsible for an increased bulk of the stool.

(4) Abnormal ingredients. The most likely are mucus, pus, blood, parasites and concretions. The mucus should be observed to see whether it is well mixed with the feces or whether it is separate and glistening. Its source can be more or less accurately ascertained in this way. The same is true of pus and blood. The round worm and the thread worm are often found in children. The sections of the beef tape worm and if the pork tape worm may be found in the stools of patients in this country. Biliary, pancreatic, and fecal concretions may be found with the feces. The most likely are the gall stones.

The microscopical examination of the feces is carried out by bringing the fecal masses to a fluid state by mixing with water or normal saline solutions. A few drops of formaldehyde solution will destroy and offensive odor. Heavy muscle and vegetable fibre settle readily to the bottom. Parasite eggs stay in the middle. Bacteria, fatty acid crystals and light cellulose materials, are in the upper layers. To find any of these, place drops of the material from the various levels on a slide and cover with a cover slip, and examine.

(5) The examination for amœbæ should be made from a perfectly fresh stool. The recognition of these organisms depends in a large measure on their amœboid movement and this soon ceases when the stool begins to cool. The eggs of the *Ascaris lumbricoides* are oval, and are protected by a transparent shell, outside of which is an albuminous envelope. The eggs of the *Oxyuris vermicularis* are oval and have a chitinous shell. The eggs of the two tape worms common to this country, the *Tænia solium* and *Tænia saginata*, are indistinguishable; they are oval with a thin shell. The embryos of these may be seen. In a patient infected with *Uncinaria americana*, large quantities of eggs are found in the stools. They are elliptical with a transparent shell, and may be segmented. Of the many micro-organisms found in the stools the tubercle bacilli are the most important. The technique for demonstrating these is the same as in the sputum.

(6) Red blood cells are usually destroyed by the intestinal secretions, and when found usually come from the lower bowel. White blood cells

appear normally in the stools, but are increased in catarrhal conditions. Eosinophiles are found in the stools of persons suffering from intestinal worms of muco-membranous colitis. Epithelial cells are constantly present, but are usually very much digested. In inflammatory conditions they may be much increased, and may not be destroyed. Mucus without epithelial cells indicates an inflammatory process. Mucus appears as epithelial cells indicates an inflammatory process. Mucus appears as triple phosphate calcium phosphate and calcium oxalate, may be found under conditions similar to those that occur in the urine. Fragments of intestinal tissue or of neoplasms may be sloughed off and excreted in the feces. No close student of the manifestations of disease can afford to neglect this valuable means of investigating the secretions, absorptions, and motor functions of the stomach and intestines.—*The Canada Lancet*.

SURGERY.

Spinal Anæsthesia.

CHAPUT (*Presse Medicale*, Nov. 20, p. 753).—The great advantages of spinal anæsthesia by the method of TUFFIER have led to attempts to extend its sphere. Thus, applied at first to operations on the perineum and lower limbs, it has been successfully employed for those of the inguinal region, the abdomen, and more lately for the upper limb or of any part of the body. During the last two years the writer has performed more than 100 laparotomies under spinal anæsthesia without any incident worthy of note. It is possible by this means to secure profound anæsthesia with certainty. The patient appears perfectly insensible except that he replies when spoken to but is otherwise silent. Since Mar., 1907, the writer has endeavoured to extend the use of this method to operations at a higher level, and during the following 4 months he operated 17 times on the breast, axilla, upper limb, cervical glands, finally removing an epithelioma of the parotid gland without incident as regards anæsthesia. In several cases the patient became pale and was given an injection of caffeine. In 2 cases there was headache which yielded to the withdrawal of 10 c. c. of cerebro-spinal fluid and in 1 patient there was diplopia which was probably syphilitic in origin and passed off in 10 days.

In order to obtain this certainty of anæsthesia it is necessary to use a mixture of stovaine and cocaine. The former drug is very untrustworthy when used alone, being less active than cocaine and badly tolerated. The writer uses an isotonic solution of 2 per cent, of which the stovaine represents $\frac{2}{3}$ and the cocaine $\frac{1}{3}$, prepared in sterile ampoules by BILLON.

The requisites for anæsthesia are simple: 2 LUER'S syringes each of 2 c.c. capacity, 2 TUFFIER'S needles furnished with a handle, an ampoule of

scopolamine, and several of stova-cocaine solution, and finally a solution of caffeine. An hour before the operation a subcutaneous injection of $\frac{1}{4}$ mgm. of scopolamine is given and the patient's eyes and ears are bandaged. Lumbar puncture is performed and 10 to 15 c.c. of cerebro-spinal fluid are withdrawn to avoid headache. The anæsthetic is then injected, 4 c.c. of the solution being used in two syringes, this being equivalent to 8 cgm. (12 gr.) of the mixed alkaloids. The anæsthesia reaches the level of the face in 10 to 15 minutes and persists for about half an hour. If during the operation the patient becomes pale or the pulse feeble, a hypodermic injection of caffeine may be given or the patient may be placed in the Trendelenburg position, which is effectual in cases showing symptoms of cerebral anæmia. The patients are usually calm after operation but may suffer more or less from headache on the second or third day, which may be at once relieved by the withdrawal of 10 to 15 c.c. of cerebro-spinal fluid. In some cases there is some loss of power in the tongue and muscles of the jaw giving rise to slight difficulty of articulation during the operation, but this passes off with the anæsthesia. During anæsthesia the respiration varies between 16 and 20, and the pulse rate from 60 to 100, which shows that the vagus centres are not markedly affected and leads the writer to hope that this method will soon form a serious rival to the methods of general anæsthesia.

There are certain general conditions which must be observed as regards the anæsthetic solution and the state of the patient. To neglect of these most of the failures or accidents which have been recorded may be attributed. The use of adrenalin is dangerous in spinal anæsthesia. The dose of anæsthetic should not exceed 8 to 10 cgm., which is amply sufficient for operation in any part of the body. Concentrated solutions, such as 10 per cent. are inconvenient and dangerous. Stovaine alone has proved unreliable. The writer prefers the 2 per cent. solution of stova-cocaine in which stovaine and cocaine are mixed in the proportion of 3 to 1. This should be prepared as an isotonic solution and sterilised in bulbs by a reliable firm such as BILLON. Large doses, the use of adrenalin, and imperfect sterilization, are responsible for most of the accidents of spinal anæsthesia.

The chief contra-indications are arteriosclerosis and advanced age. Patients over 65, and the subjects of cachectic states, severe medical or surgical anæmia, serious infections, albuminuria, or diabetes, are rarely suitable for this form of anæsthesia. Syphilis or affections of the nervous system, such as tubes, myelitis or cerebral lesions, predispose the patient to paralytic complications and therefore contra-indicate spinal anæsthesia. The presence of ARGYLL-ROBERTSON'S SIGN alone should be a

contra-indication. While these contra-indications are provisional, the writer is convinced that even when present the spinal method is less dangerous than the administration of a general anæsthetic. For an operation on an adult in good health the former is much the better.—*The Medical Review*.

Inherited Syphilis.

It may be accepted, to begin with, that the spirochæta pallida discovered by SCHAUDINN and HOFFMAN in 1905 is the true cause of the disease. It has also been shown that mercury destroys the parasite.

Some speak of syphilis as it appears in the newborn, soon after birth, or in the early years of life, as congenital, hereditary, and inherited. It would seem that the latter is the term to be preferred. It is not always congenital, and the term hereditary applies to something that may be passed on from one generation to another. Inherited syphilis would appear to be least open to objection.

It was taught by JONATHAN HUTCHINSON long ago that if the foetus did not get the germ of syphilis it did not get the disease. But then the germ had not been found. Now it has been found, and this enables us to draw some very important deductions.

It may be laid down that the foetus cannot inherit syphilis from the male parent alone. It is not conceivable for the spirochæte to be conveyed in the spermatozoon and multiply there without destroying it. This would render it impossible for the mother to be infected by the foetus. The syphilitic child cannot cause a chancre on the mother's nipple. Both have the disease. This is COLLES' law. It would seem from this that inheritance is always through the mother.

If the spirochætes be active or virulent they penetrate into the placenta and cause the death of the foetus and premature birth. In other cases, due to treatment or lapse of time, the organisms have lost much of their virulency. In such cases the foetus usually escapes till the moment of birth. When the uterine contractions separate some portions of the placenta, infection takes place through it, and the organisms are carried from the uterus to the separated placenta, and then to the foetus. In such cases the rash of the disease appears a short time after the birth of the child. The mother must be first infected and then the foetus. Never the foetus direct from the father and the mother through the foetus.

It has now been settled, after long and keen debate, that the milk of a syphilitic woman introduced into the alimentary canal of the child need not cause syphilis. There are cases on record where women with active secondary syphilis nursed children who escaped the disease.

A good deal of observation has been carried on as to whether the semen can convey the infection. It is quite clear that the spirochæte cannot be carried in the spermatozoon, as the less cannot contain the greater. But some experiments have been conducted that go to show that the spirochæte may be suspended in the semen. In this way a woman may be infected after the chancre on the male has healed. The female may be infected by the semen through abrasions on the mucous membrane, or through the endometrium after menstruation, when the mucosa is broken down.

Can syphilis be transmitted to the third generation? Mr. HUTCHINSON thinks that such does not occur. On the other hand, EDMOND FOURNIER and the late R. W. TAYLOR reported cases that go to show that it is possible. This subject requires much careful investigation before any definite opinion can be pronounced. The weight of opinion at the present moment is rather in favor of the possibility of transmission to the third generation.—*The Canada Lancet*.

Case of Rupture of Middle Meningeal Artery: Operation; Recovery.

BY
G. MUNRO SMITH,
Surgeon to the Bristol Royal Infirmary.

THE following case is, I think, worth a brief record, because of its intrinsic interest, and because the symptoms and physical signs were throughout typical of the lesion, and led to early and successful treatment.

A. L., aged four years, fell out of a cart on June 14th, 1907, and was taken up in a stunned condition. He soon regained his senses and seemed fairly well until the evening of the following day, when he became rather suddenly unconscious, and was at once brought from his home at Hambrook to the Bristol Royal Infirmary.

On admission he was unconscious, but occasionally cried out and moved his limbs restlessly about. It was noticed that he moved his right side much more freely than his left. His pulse was 60, his respirations quiet, with a long-drawn breath now and then, almost like a yawn. The temperature in the right axilla was 99° F., and in the left 98°.

The pupils were equal in size, and reacted to light. Soon after admission, however, the right (side of lesion) became dilated and fixed.

On the right temporal region of the head was an oval, flat, puffy swelling some two or three inches in diameter. No depression or fracture could be felt.

The clinical history, the sight of the swelling, the coma, the dilatation of the right pupil, and the partial loss of voluntary movement on the opposite side to the injury, &c., immediately suggested rupture of the middle meningeal artery, and it was decided at once to open the skull.

A large flap of skin and temporal muscle was turned down, and the trephine applied an inch and a quarter behind the external frontal eminence, and the same distance above the zygoma. Directly the bone was removed a clot presented itself. The opening in the skull was enlarged downwards and backwards, pulsation of the clot soon became visible, and arterial blood oozed out. After rapidly removing some bone, to the extent altogether of two or three inches square, the bleeding point was found in the posterior branch of the middle meningeal, which had been torn across by a fracture in the bone over it.

I passed a silk ligature on a curved needle through the dura mater, under the artery, and tied the vessel. Bleeding at once stopped. A large quantity of clot was then evacuated. This clot had burrowed downwards towards the base of the brain, as well as over the lateral convolutions; and in places the brain was separated from the skull for a space of three-quarters of an inch, showing how considerable the pressure must have been.

During the operation the right pupil contracted to the same size as the left, the pulse rose to 160; all signs of compression ceased; but even on the following day the patient, although quite able to move his left arm, preferred to move his right, and there was some temporary ptosis of right eye-lid.

On June 17th his temperature rose to 100° F. but after this his recovery was rapid and uninterrupted. Before the boy returned to his home a gutta-percha shield was made to protect the large area of brain which was deprived of its bony covering.

It might be wise in these cases to turn down a piece of bone (osteoplastic) instead of using the trephine and bone forceps; but it is impossible to be certain of the position of the bleeding point. Most of these injuries of the middle meningeal artery are of the anterior branch, it is true, but there was no clinical sign to show that it was the posterior branch that was ruptured in this case, and it would have to be a very large flap of bone to afford access to all possible points of hæmorrhage.

Death is by no means uncommon after these operations, probably from want of expansion of the brain substance, or from cedema following the sudden relief of pressure:—*The Bristol Medico-Chirurgical Journal*.

The Indications for and against Removing Adenoids, and Method of Operating.

SAMUEL W. THURBER (*Archives of Pediatrics*, January, 1908) describes the operation for removal of adenoids and indications for treatment. He says an adenoid is an overgrowth of glandular tissue in the nasopharynx. What constitutes a normal pharyngeal tonsil is hard to say. Indications for treatment by removal are based upon the symptoms produced. They are:

1. Nasal obstruction, causing (a) broken sleep, struggling for breath, nightmare. (b) Anemia and general debility. (c) Malnutrition and stunted growth. (d) Headaches and poor memory. (e) Snoring. (f) Enuresis.
2. Mouth-breathing, with the attendant chronic pharyngitis, laryngitis, bronchitis, and croup.
3. The presence of adenoids, causing: (a) Thick speech of nasal quality. (b) Inability of infants to suck. (c) Frequent colds or a chronically-running nose. (d) Deafness. (e) Gastric trouble from swallowing nasal discharge. (f) Epistaxis. (g) Anosmia.
4. Reflex conditions, sometimes due to the presence of adenoids: (a) Asthma. (b) Hay fever. (c) Stammering. (d) Epilepsy.

Another indication is a narrowing of the upper jaw, and irregular crowding of the teeth. From a given permanent incisor or molar, a dental arch curve can be mathematically plotted, and this curve is always a well rounded one in front. The high, narrow arch is abnormal, and often seen in idiots. Secondarily, in these cases we may have deviated nasal septa.

CONTRA-INDICATIONS.

Do not operate during acute conditions, coryza, etc., else new avenues of infection may be opened for the streptococcus or pneumococcus.

Do not operate on children who have grave constitutional disorders, such as hemophilia, nephritis, diabetes, leucemia, syphilis, or tuberculosis.

Do not operate just because there are *some* adenoids present, when the obstruction really is due to something else, such as enlarged turbinate bodies, deflected septa, new growths, or even foreign bodies. Large faucial tonsils may also be the cause of the obstruction, not the small adenoids.

Be sure the adenoids are the cause of the reflex symptoms. Make a thorough physical examination to determine this point.

Again, it is not a good plan to operate during epidemics of the infectious diseases, especially upon school children.

These cases should be operated upon early. In infants and very young children, no anesthetic is necessary. The writer prefers ethyl chlorid as an anesthetic in older children. It is prompt, does not stimulate buccal secretion, lasts long enough to perform the operation, and is not followed by nausea or vomiting. It is given from a tube of kelene, sprayed on a special mask, or on an ordinary chloroform mask.

The curette is the best instrument, a modification of the original Gottstein instrument:—*The Medical Brief*.

Treatment For Warts.

In the treatment of warts on the hands and lips, MANTELIN, in the *Bulletin Generale de Therapeutique*, recommends both local and internal medication. He directs that nine grains of magnesia be taken every day, and that the following collodion be applied to the warts:

Chloral	..	..	..	..	90 grains.
Acid, acetic	..	..	..	..	90 grains.
Acid, salicylic.	..	..	..	..	60 grains.
Ether	..	..	..	..	60 grains.
Collodion	..	..	..	..	225 grains.

—*The Medical Brief*.

OBSTETRICS AND GYNÆCOLOGY.

The Treatment of the Vomiting of Pregnancy.

Dr. V. E. WATKINS, United States Army, remarks:—There are two forms of the vomiting of pregnancy presented to the clinician for consideration; first, the simple "morning sickness," and, second, pernicious vomiting, or hyperemesis. The simple vomiting, fortunately, is the form most frequently encountered, and after a varying degree of annoyance to the patient will cease about the end of the third month of gestation. The treatment is largely expectant, as evidenced by the vast number of drugs which have been recommended for the condition. Modifications of diet to suit individual cases, regulation of the bowels, and the use of cerium oxylate in 2 to 5 grain doses will suffice.

Hyperemesis is always associated with an auto-intoxication, and this auto-intoxication as the causative factor must be recognized in order that the proper therapeutical measures may be instituted. In simple vomiting the urine is free from albumin, but in the pernicious form albumin is always present. But there is always a marked diminution in

the amount of urea excreted. A pregnant woman, therefore, with vomiting, albumin in the urine, and a decrease in the quantity of urea excreted, is in a serious condition, and the treatment must be prompt and energetic. There is no drug known which will control this condition. The three principles involved in the treatment are nourishment, rest in bed, and stimulation. These patients lose their strength with remarkable rapidity, and should be put to bed as soon as evidences of physical weakness are manifested.

The nourishment of the patient is the most difficult problem. In some cases the withdrawal of all food for twelve or fifteen hours, with the patient in bed, will so quiet the stomach that small quantities of fluid will be retained. Milk, either plain or predigested, is to be preferred, and is to be given a teaspoonful at a time and gradually increased in amount until at least two quarts in the twenty-four hours are taken. The intake of fluids must be large, and the patient should be given water freely, preferably carbonated. In other cases the stomach will require more time before retaining the liquid nourishment, and it will be necessary to resort to rectal alimentation for a few days. For the depression of the heart, which is invariably associated with cases of any severity, strychnine is to be used. Improvement in the condition will be manifested by an increase in the quantity of urine, decrease in the amount of albumin, increased excretion of urea, and a gradual return of the patient's strength. If this line of treatment does not succeed, the only recourse remaining is to empty the uterus. Production of abortion will result in a cure if the operation is resorted to soon enough, but unfortunately it is in many cases postponed until the condition of the patient has become so serious that death is inevitable, whether abortion is induced or not.—*N. Y. Med. Jour.*

NOTE.—We desire to refer to a line of treatment whose merits are not properly appreciated. Give the stomach absolute rest for six to ten days. Administer enemata of salt solution, as follows: Inject as high as possible 10 to 12 ounces of salt solution, and repeat often enough to use 4 pints in 24 hours. When the rectum is intolerant a few drops of laudanum should be added to each enema. The salt solution thus injected is generally well borne, dilutes the toxins, and furnishes the needed liquids for the body.

Pure milk is not generally well borne. Milk diluted with soda water, and buttermilk are preferable. In many cases scraped beef is much more easily digested.

We quite agree with Dr. WATKINS that the induction of abortion is sometimes indicated; but we have learned that this operation, even when "resorted to soon enough" (which may be considered as soon as a jury of

obstetrical experts would decide), does not always result in a cure.—*The Canadian Practitioner & Review.*

Tincture of Iodine in Puerperal Fever.

ALDO MERGARI reports his method of using iodine as an intra-uterine injection in cases of puerperal fever. It has had favorable results even in severe cases. He disinfects the vagina in case it is necessary, lightly cures the endometrium, and by using a Doleris sound injects into the uterus from 150 to 200 grams of a mixture of equal parts of tincture of iodine and warm water. It is necessary to make sure of a return flow. After some minutes, or on the slightest pain, the fluid is allowed to flow out, and the cavity is washed out with boiled water to remove the excess of iodine. No tampons are used. The author has obtained a cure in seven cases of puerperal fever with very rapid results from the injections. The good results are ascribed to the large amount of iodine used and the nascent state of the iodine.—*La Riforma Medica.*

Rupture of the Umbilical Cord during Labour.

O. H. FORSELL (*Archiv f. Gynakol.*, Band lxxxiv, p. 198) states that among 14,639 births at the University Lying-in Hospital at Stockholm, only 2 cases of rupture of the cord during labour are recorded. In the first case, the labour was precipitous, and when the head was born, 5 minutes after the rupture of the membranes, the cord was seen to be twisted round the neck. The body followed almost immediately, and the cord was torn off close to the umbilicus. Mother and child did well; there were no signs of syphilis, the cord was 56 cm. in length, and macroscopically normal. Unfortunately it was not kept for microscopical examination. In the second case the labour was also riotous, with a foot presenting. When the head was delivered the cord tore off 42 cm. from the umbilicus. The foetal heart sounds were normal throughout. The placenta, with 11 cm. of the cord, was expelled 10 minutes after the birth of the child. The cord seemed normal except for a length of 2 cm. where WHARTON'S sulcus showed considerable thinning. It was there that the rupture had taken place. FORSELL has examined a great number of normal cords, and attributes the great power of resistance and elasticity of the normal cord to the rich development and distribution of elastic tissue in the walls of the vessels. The elastic fibres run a longitudinal, as well as a circular, course in the vessel wall, thus forming a network of considerable strength in the muscular coat. In the second of the cases described, this elastic tissue was almost entirely absent in the arterial walls and poorly developed in the veins and at the seat of rupture there was no trace of elastic fibres.—*The Journal of Obstetrics and Gynecology.*

Labour without Loss of Blood.

GALLE, Hirschberg (*Zentralb. f. Gynakol.*, 1907, No. 47, S. 1475), reports: A secundipara, aged 38, in the first and second stages of delivery did not lose a drop of blood. The placenta was retained for four hours and a half; in spite of its relaxation the uterus, under friction, contracted, but did not expel any fluid blood or clots, and it was only after the expression of the placenta that about one teaspoonful came away. According to AHLFELD only 5 labours in 6,000 are unattended by any hæmorrhage.—*The Journal of Obstetrics and Gynecology*.

THERAPEUTICS.

Secretin.

It is well known that each phase of digestion is influenced by that which precedes it; the mastication of food and the secretion of saliva in some way cause an increased secretion of gastric juice; the discharge of chyle through the pylorus causes an increased secretion of pancreatic juice; and so forth. The mechanism by which the secretion of pancreatic juice is thus influenced has been the subject of much research work of recent years, notably at the hands of Professor STARLING.

PHYSIOLOGY.

The outcome of these researches is briefly as follows:—

The duodenal mucosa has two very important functions besides those of resorption. It has a special external secretion, which it pours into the lumen of the bowel; and it has a special internal secretion, which it returns to the blood-stream. The name secretin has been given to the substance which, produced by the duodenum, is returned to the blood-stream; and its function is to stimulate the cells of the pancreas to increased activity. The other duodenal secretion has as yet no generally accepted name, but it has a very important function. The pancreatic juice, as it leaves the pancreatic cells and lies in the ducts of the gland, is comparatively inert, its ferments being incompletely active; but when they mix with the duodenal secretion the pancreatic ferments are at once matured and made perfect for digestive purposes. The importance of this is manifest. It explains why the pancreas and its ducts are not being constantly auto-digested, and it may perhaps explain why they sometimes do become auto-digested; if, for example, some irregularity of peristalsis, the result of injury, or of a calculus at the ampulla of Vater, or something of that sort, were to cause some of the duodenal juices to regurgitate into the pancreatic ducts, the ferments in the juices therein would be converted from an inactive to a highly active condition, and the result would be some degree

of pancreatic digestion associated with inflammation—in other words, acute pancreatitis, hæmorrhagic or otherwise, with fat necrosis and peritonitis.

The secretin, on the other hand, is not concerned with activating the pancreatic ferments; its function is to cause increased secretion of normal pancreatic juice at the right time. Secretin can be prepared by suitably extracting duodenal tissue; when administered to animals it causes an enormous increase in pancreatic activity, and unless the dose is very carefully regulated the intestinal mucosa may become tremendously irritated and inflamed as the result.

THERAPEUTIC POSSIBILITIES.

It is not as yet very safe to employ secretin itself in the treatment of diseases in man. More experiments upon animals are required before all its possible dangers are fully understood; but the knowledge of secretin and of its effects upon the pancreas opens up a prospect of some day being able to combat successfully such diseases as are due to pancreatic insufficiency. Diabetes mellitus occurs to one at once. We have no certain knowledge that diabetes is really due to trouble in the pancreas; there is much evidence to show that it often has nothing to do with the pancreas at all; but if there are even only some cases in which a pancreatic lesion is at the root of the diabetes, secretin might well be of service in its treatment. It has been tried already, but hitherto without much benefit; this however, does not show that it will never be of use in this affection; many more experiments are required, both upon secretin itself, and still more upon diabetes, in order to settle if possible the exact rôle, if any, of the pancreas in the pathogeny of the latter.

If the time is not yet ripe for the use of secretin in the treatment of disease, much advantage may already be got from a clear understanding of the factors which modify the two secretions of the duodenum—secretin on the one hand, and the activating substance secreted into the contents of the bowel on the other. Both these secretions are called forth in abundance whenever the acid products of gastric digestion pass the pylorus and enter the first part of the duodenum. It is the acid which calls forth the duodenal secretions; they may be evoked experimentally by applying any ordinary weak solution of acid to the mucosa. Supposing, therefore, that no acid products of digestion reached the duodenum, the actual amount of pancreatic juice secreted would be deficient, and at the same time the activation of the ferments in the juice would be incomplete. The result would be inefficiency in digestion. It does not follow, of course, that the patient would lose weight, or even be dangerously ill; for fortunately the human frame has an immense amount of adaptability,

and there are very wide margins between which the activity of secretions and absorptions may vary without there being any actual danger; but when the pancreatic juice is deficient, nature will revolt against giving it more work to do than it can accomplish, and loss of appetite will be one of the earliest results. The administration of acids by the mouth will tend to correct this, and it is interesting to know this physiological *raison d'être* of the many efficacious acid remedies for dyspepsia; it is very probable that they do not act so much by assisting the activity of the pepsin as they do by causing the chyle, as it enters the duodenum, to be sufficiently acid to evoke a proper formation of secretin. This being so, it is not at all surprising that the acid mixtures often do more good when they are given half an hour after meals than when they are given before eating.

Again, it has long been known that deficiency of the HCl in the gastric juice is by no means restricted to cases of gastric carcinoma; there is similar deficiency or absence of free HCl in many other conditions, such as malignant disease elsewhere than in the stomach, cirrhosis of the liver in its later stages, fevers of all kinds, chronic heart disease with failing compensation, chronic Bright's disease sometimes, phthisis, and so forth. It is very possible—nay, probable—that the cachexia associated with many of these diseases is at least accentuated by the absence of proper pancreatic secretion owing to lack of sufficient acid-stimulation of the duodenum; it is clear that, if this be so, the administration of an acid mixture should be indicated, and that the best time to give the acid would be when the gastric contents have become sufficiently disintegrated to be passing at their maximum rate through the pylorus into the duodenum—a time which varies with the motility of the stomach and with the nature of the last meal eaten. It would seem wise, moreover, to give more than a single dose of the acid mixture after each meal; in some cases the acid would do most good if given in three or more small doses, at intervals of half an hour, to ensure each portion of the gastric contents containing acid when it reached the duodenum. It is clear, moreover, that if one would be accurate in treatment, any opportunity that may be afforded for estimating the acidity of the gastric juice upon varying diets and at varying intervals after meals should always be taken advantage of. Lavage can scarcely be undertaken for this purpose, except in a few cases; but when lavage is not possible occasional vomits may assist greatly; no vomit should be thrown away until it has been examined for acid, and the result interpreted in relation to the diet eaten and the time that has elapsed since the last meal, as we have already discussed elsewhere. The importance of secretin and the physiology of the duodenum in relation to the pancreas is also great in connection with

gastro-jejunostomy, affording an additional argument against the performance of this operation upon any but essential grounds. As a matter of fact, however, the passage of acid gastric contents into the jejunum appears to be a better alternative to their passage into the duodenum than might have been expected. Researches have shown that resorption of fat and of proteid is by no means very deficient after gastro-jejunostomy particularly if a portion of the gastric contents can still find their way *via* the pylorus. Experiments may some day show that the jejunum as well as the duodenum has some power of producing secretin.

Be this as it may, enough has been said to indicate the important advances that have recently been made in connection with the chemistry of the functional relationship between the duodenum and the pancreas, and to outline the important points in treatment upon which light has been thrown by researches into the physiology and pathology of that internal secretion of the duodenum which is known as secretin.—*The Hospital*.

Veronal Rashes.

Invaluable though veronal has proved to be in certain conditions of sleeplessness, the drug has already shown itself capable of producing certain symptoms, some of which like the delirium it may cause, are serious, whilst others are only important in that an error of diagnosis may readily be made if they cannot be traced to their real cause. Amongst the latter may be mentioned the erythematous, scarlatiniform eruption upon the skin that may result from the use of veronal.

The eruption in this condition is transient, and it seems to do no harm; so that its occurrence appears to be no contra-indication to the use of the drug. The importance of the eruption is chiefly that it may be mistaken for that of scarlet fever if the observer is not alive to the fact that it may be caused by the veronal itself.

Cases of the kind have been reported upon the Continent by Dr. Zengerly and others. The following are two examples:—

A woman aged fifty was suffering from melancholia and extreme sleeplessness. For the latter all sorts of hypnotics had been used, with more or less ill-success, and, finally, veronal was tried in its turn. In fifteen-grain doses it seemed to work well, and it was repeated on consecutive nights for some time. On the day after the tenth dose the patient complained of a burning sensation in the precordial region. Nothing abnormal could be detected at the time either in the skin or in the sounds or action of the heart. That same evening, however, the chest, abdomen,

back, and limbs came out in a uniform strawberry-red erythematous rash, whilst the temperature rose to 101 F. at the same time.

The possibility of the presence of scarlet fever immediately suggested itself, and had there been any chance of contagion having reached the patient, or if she had any severe sore throat or any albuminuria, she would almost certainly have been sent to a fever hospital. Even as it was, the clinical picture of the skin was so like that of scarlet fever that the nature of the trouble was open to doubt at the time. The patient, however, could not have been exposed to scarlatinal infection under the conditions in which she was living; and the subsequent course of the trouble lent no support to the suspicion that she had contracted scarlatina. The pyrexia rapidly subsided; the rash speedily began to fade, and it was quite gone in four days; there was no sign of any peeling of the skin; and no one else in the neighbourhood developed scarlet fever.

The second case was that of a paralytic old man of sixty. The patient had hitherto been quite well in himself, except for sleeplessness and his paralysis. Each night he had been taking a seven-grain dose of veronal, and the day after the fifth of these he complained of dullness in the head and headache, with weary pains in his limbs, none of which symptoms had been complained of before. His temperature began to rise in the evening to 100° F. or thereabouts, and he broke out into a bright scarlatiniform rash over his chest, abdomen, and thighs. The veronal was stopped and two days later the erythema had entirely gone again, and with it all the patient's unwonted symptoms.

These two cases agree exactly with those recorded by others as instances of veronal eruptions. It would seem as if certain patients have a peculiar idiosyncrasy to the drug; for in comparison to the very large numbers of persons who can take veronal well only a very small number show any of this tendency to erythema. It would have been a most interesting experiment to have tried veronal a second time in the above patients, to see whether the erythema would have recurred. It was scarcely justifiable to make the experiment, however, and they are by no means the only cases in which a scarlatiniform eruption after the administration of veronal has been recorded.—*The Hospital*.

Strontium Bromide.

W. J. ROBINSON, New York City (*Journal A.M.A.*, January 18), gives a sketch of the history of the bromides in medicine. There are fourteen official compounds, and besides these he enumerates about twenty non-official preparations that have come more or less into use.

The real therapeutic facts to which he can testify as regards the bromides are their value as general nervous and sexual sedatives, and of all the inorganic salts, he finds potassium bromide the worst and most toxic and strontium bromide the best. The undesirable effects of the potassium salt, he holds, by far outweigh its beneficial ones. The sodium salt is much milder, and when chemically pure strontium bromide, he asserts, obtainable, it is the bromide to be chosen. Strontium bromide, he asserts, is the best of all the inorganic bromide compounds. It is a positive (a) anaphrodisiac; (b) nervous and genito-urinary sedative; (c) it does not upset the stomach; (d) it does not produce acne, except perhaps to a very slight extent; (e) it often acts as a mild intestinal antiseptic; (f) it does not tend to irritate the kidneys, but rather the contrary; (g) it has a tendency to diminish albumin in albuminuria and sugar in glycosuria. Whenever he has found a patient using strontium bromide complaining of nausea or gastric irritation, investigation has disclosed that he was using a cheap commercial bromide and analysis revealed barium contamination. The test for barium is easy, and in case of doubt the physician should apply it himself. Fifteen grains each of strontium bromide and sodium acetate are dissolved in 75 minims of distilled water, from 5 to 8 drops of diluted acetic acid are added, and then 5 drops of potassium bichromate test solution. A cloudiness or precipitate indicates the presence of barium, and such a salt should be rejected. The dose of strontium bromide ranges from 10 to 60 grains, three or four times a day. Occasionally it may be given in doses of one or two drams. It is incompatible and should not be prescribed with citrates or sulphates, and it is best also to avoid prescribing it with alkaloids.—*The Canada Lancet*.

The Effects of Hydrastis and its Alkaloids on Blood Pressure.

W. WHITRIDGE WILLIAMS (*Journ. Amer. Med. Assoc.*, 1908, vol. 1, p. 26) says hydrastis is usually considered as having marked styptic properties due to local vaso-constriction. Clinically its administration is supposed to result in a rise of blood pressure. An extended series of experiments made on dogs does not bear out this idea. The most constant and conspicuous effect of the intravenous injection of hydrastis is a prompt fall of blood pressure. With small doses, the pressure promptly returns to normal, and may even rise slightly above normal; with larger doses, the recovery is only partial, or the blood pressure may remain low. These phenomena are attributable to depression of the cardiac muscle causing the fall, and to stimulation of the muscle causing the rise. Very large doses depress and paralyse the vagus and vasomotor system; otherwise

there is no evidence to be deduced from the myocardial and oncometer tracings that the vasomotor system plays any important role in the blood pressure changes. The two principal alkaloids of hydrastis, hydrastin and berberin, have qualitatively the same effect on the blood pressure, although berberin is the more active and is responsible for about 85 per. cent. of the effect of hydrastis, hydrastin causing the remaining 15 per. cent. Given by the mouth, or hypodermically, hydrastis causes no change in the blood pressure, heart rate, or respiration. The results of the investigation do not support the clinical theories concerning hydrastis. It is possible that conditions in man and in disease may modify the action of the drug as observed experimentally, but this is improbable.—*The Journal of Obstetrics and Gynecology.*

OPHTHALMOLOGY.

Diseases of the Eye.

BY

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EXAMPLES OF SECONDARY GLAUCOMA.

THE first case was that of a woman of middle age, who had suffered from recurring attacks of iritis in both eyes for many years. As a result, the pupil in each eye had become sealed down to the lens capsule, and the consequent retention of fluid behind the iris had produced the condition of bowed or arched iris, technically known as *iris bombe*. The arching forward of the iris had closed the angle of the anterior chamber, so that the normal flow of the intra-ocular fluids was suspended, and increased ocular tension with gradual loss of sight was the result. In the right eye vision was quite abolished when the case first came under observation, and the eye was extremely hard, being in the condition known as absolute glaucoma; whilst in the other eye there was still some vision left, although the tension was nearly as high as in the right.

If an eye had once lost perception of light no treatment was of any avail so that there was nothing to do for the right eye but remove it if it became painful. An iridectomy was the best means of relieving the condition in the other eye, and this was performed with very successful results, the tension of that eye becoming at once lowered to normal and the vision considerably improved. It was fair to assume that the patient was cured of all danger of blindness in the left eye.

The condition might have been relieved by simply cutting a hole in the iris with a keratome or Graefe knife, without actually removing

a piece of iris; but this procedure is, as a rule, not so satisfactory in its results, as the opening is apt to close. As all that is required in the majority of these cases is the formation of a passage by which the intra-ocular fluid can pass into the anterior chamber, a peripheral section of the iris, as employed for the relief of primary glaucoma, where there are actual adhesions at the root of the iris blocking the anterior angle, is not required.

It should be borne in mind that the operation should only be undertaken when the eye is quite quiet, as the throwing out of inflammatory exudations from the iris after operation might readily seal down the cut pillars of the iris again, so that the passage of fluids would be blocked as before.

It is interesting to note that the performance of iridectomy is also very effectual in preventing fresh recurrences of iritis by improving the vitality and nutrition of the eye, and so rendering it less susceptible to inflammation.

The second case of secondary glaucoma was that of a young woman who had suffered in infancy from ophthalmia neonatorum, with the result in the right eye, that a large central corneal ulcer had formed, perforated the cornea, and in healing had engaged a very large proportion of the pupillary portion of the iris. In the other eyes there had been a similar condition of affairs, but the perforation of the cornea had been very small, and consequently only a very small attachment of iris to the scar had followed. The large, dense, white scar in the middle of the cornea of the right eye had practically destroyed the vision, but, in addition, the dragging of so much iris up to the cornea had produced a very great general shallowing of the anterior chamber, and secondary glaucoma had slowly supervened. Also the eye suffered from frequent attacks of irritability, accompanied by redness, photophobia and pain.

When the patient first came under observation the eye was very hard and vision was reduced to perception of light. She came to Moorfields to see if anything could be done, her case having been recently pronounced hopeless at another hospital. A large iridectomy was performed with very successful results about six months ago. The intra-ocular tension at once became normal, and vision was so improved by the artificial pupil that she can now read large type with that eye, and can see surrounding objects very fairly well.

A somewhat similar case, occurring in a little boy, aged 4, was also shown. He had suffered from ophthalmia neonatorum, with a central perforation of the cornea in each eye, and consequent obliteration of both

pupils, which were involved in the scars. The child was to all intents and purposes quite blind, but an iridectomy in each eye had resulted in such improvement that the child could now run about alone and play like other children, although the vision would, of necessity, be considerably impaired by the condition of the cornea. Further, there was now no reason to fear that glaucoma would supervene, so that the child's sight might be considered as saved.

EXTIRPATION OF LACHRYMAL SAC.

A case of extirpation of the lachrymal sac was exhibited as a good example of the advantage of this method of treating mucocele over the old routine method of probes. The operation had been performed only a fortnight, but it was difficult to recognize the line of the scar; and the patient, except for a slight persistence of epiphora, which would gradually disappear, was completely relieved.

The patient, a boy, aged 15, came to the hospital some four months before with an acute lachrymal abscess, having suffered from epiphora and a muco-purulent discharge for a considerable time. An incision was made that day to empty the abscess cavity and fomentations applied. He, however, did not improve in a satisfactory manner, and to ensure freer drainage an opening was made into the lachrymal sac through the lower canaliculus a few days later, and probes passed into the nose.

Considerable improvement followed, and all the swelling rapidly disappeared, but there was a persistent secretion of muco-pus, and it was found necessary to pass a probe at least twice weekly to keep the passage open. This probing caused him great pain; so, as the case threatened to be a very tedious one, a style was inserted into the canal and kept *in situ* for some weeks. This did away with the necessity for probing, but the discharge did not lessen, and the style seemed to cause a great deal of irritation. After about six weeks the style was removed, but the passage rapidly closed again, and probings being quite as painful as before, the style was put back again after another week or two. No amelioration followed, and it became evident that one had to deal with a troublesome and chronic dacryocystitis, which would probably drag on for many months if nothing more radical were done. It was therefore decided to extirpate the lachrymal sac, with the result that the boy was quite well in a week and free of all discharge.

It was natural to expect some epiphora to persist for some time after operation. It has been conclusively shown that the main factor in the production of the epiphora, in cases of lachrymal obstruction, is the reflex irritation of the lachrymal gland, induced by the inflammation of the

lachrymal sac. Even after this cause of irritation has been removed, it is to be expected that some time will elapse before the gland resumes its normal tone, and so hypersecretion continues for a while.

Further, in these cases the conjunctiva becomes also affected with a chronic inflammation, which, in its turn, tends to cause an increased secretion of tears—a symptom which accompanies all cases of chronic conjunctivitis. So that, after the sac has been removed, attention must be paid to the conjunctiva, and some lachrymation will persist until this has been rendered healthy again—a result which, in an old-standing case, it may take some weeks to effect.

PERFORATING WOUND OF CORNEA.

A case of a perforating wound of the cornea, in which there had been a large prolapse of the iris, was shown to illustrate the method of dealing with such a case. The prolapsed iris had not only been cut away, but it had been removed in such a manner that the cut pillars of the iris lay free in the anterior chamber and not engaged in the scar.

If the surgeon, in a case of this sort, simply takes a pair of scissors and snips off just as much iris as he sees protruding from the wound, he is sure to leave iris entangled in the wound, where it will remain permanently, sealed there by inflammatory adhesions. The harm of that is that the iris so entangled will very likely prove a source of infection, and the eye may thus be lost by a general panophthalmitis; and, even if this catastrophe does not occur, its presence in the wound will seriously interfere with sound healing, so that a bulging, instead of a flat cicatrix results. At the same time a troublesome iritis is set up, which may retard recovery indefinitely, and which is liable at any time to recur again upon slight provocation. Glaucoma, too, may subsequently arise, if the wound be large and much iris thereby involved.

To avoid all these complications the iris should be freed from all adhesions to the wound before any attempt is made to cut off the prolapse. This should be done by gently pulling on the prolapse, and, at the same time, passing a fine silver spatula round the wound to break down any adhesions. The longer the time that has elapsed since the accident the more difficult it will be to free the iris, and after a few days it becomes well nigh impossible, so that early operation is very advisable on this ground alone.

As soon as the iris is free, the fact will become evident to the surgeon, because he then can easily pull fresh iris out of the wound; whereupon, as soon as he is confident that the only iris in the wound is that which he has just pulled there, he should cut off the prolapse as close as he can to

the lips of the wound. The freshly engaged healthy iris will then at once slip back into the anterior chamber free of the wound, which will probably quickly heal up without further complications.—*The Polyclinic*.

Blindness due to Phlegmonous Tonsillitis.

SIGGEL. Klin. Monatsbl. f. Augenheilk., XI. V, 1907. The patient, a man 20 years of age, suffering from a febrile phlegmonous inflammation of the right tonsil, presented right-sided exophthalmos, with swelling of the lids and conjunctiva, and almost simultaneously the eye of the affected side became blind, with a rigid pupil. Subsequently there was loss of sight in the other eye as well. Two days after the appearance of the right-sided exophthalmos a hard strand corresponding to the internal jugular vein became palpable upon the same side of the neck. The patient recovered under symptomatic treatment of the angina and injections of mercurial ointment into the neck. The left eye was again enabled to count fingers at one metre's distance, in the upper nasal quadrant, whereas the blindness persisted in the right eye. The ophthalmoscope showed the picture of atrophy in both optic nerves.

The clinical picture is interpreted by the author in such a way that, subsequent to the inflammation of the right tonsil, there was thrombophlebitis of the palatine vein, transmitted from here to the internal jugular vein, then through the inferior petrosal sinus to the right cavernous sinus and the ophthalmic vein. The thrombosis passed to the left cavernous sinus through the circular sinus Ridley. In this particular instance the blindness in thrombosis of the cavernous sinuses presumably was not referable to compression of the nerve fibres or to optic neuritis, but rather to the sudden shutting off of the blood supply corresponding to the rapid evolution of the amaurosis.—*The Medical Review of Reviews*.

DERMATOLOGY.

Psoriasis.*

BY,

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Gentlemen, I have the pleasure to show you two patients suffering from the same disease. The first patient, Mr. R. B., age 22 years, had rheumatism four years ago, and now has fleeting pains in his legs. He has never been ill, except that he has had measles when he was a child. His family history is negative.

* Clinical Lecture delivered in the Amphitheatre, Medico-Chirurgical Hospital.

Habits.—For the past six months he drank beer excessively: took his meals, which were mostly cold, at irregular times, and, as he states, the food being of a poor quality. The disease first appeared on the anterior surface of both knees in the form of red papules covered with whitish scales. Soon similar papules appeared on his back and on the extensor surfaces of his forearms. In many places where a number of papules appeared closely together they coalesced and formed the patches present and which are so profusely covered with scales that are easily removed, leaving a red infiltrated base. The lesions are non-painful, but they itch occasionally. The physical examination does not reveal any organic disease of the internal organs. His eyes show signs of slight jaundice; the tongue is heavily coated and the breath has an offensive odor. He complains of eructations of large quantities of gas; the bowels are constipated, having only two movements in a week's time.

The other patient, Mr. J. S., age 21 years, has had no illness since his childhood days, when he had measles, diphtheria and scarlet fever. He is well nourished. Physical examination reveals no abnormal condition of his internal organs. When he is dressed, with the lesions all covered up, he has the appearance of a perfectly healthy man. He claims that the family history is entirely negative as regards rheumatism, tuberculosis and cancer.

Six months ago he first noticed a few small papules appear on both of his elbows, and in the course of a few days more similar lesions appeared on the extensor surfaces of his forearms. The lesions are situated closely together, forming the larger areas present on the arms and legs. You will notice this patient has not so many large patches of involved skin as the other one, but his back is profusely covered with papules the size of a large pea, which are covered with thick, whitish scales that can be picked off readily, leaving the characteristic infiltrated base. The cause of this patient's disease is undoubtedly due to his excessive indulgence of rich foods. He eats large quantities of meats and pastries and drinks from five to six cups of coffee daily. His bowels are regular; appetite too good.

Diagnosis.—The disease in these two patients is undoubtedly psoriasis. The diagnosis can be clearly made from the characteristic red papule covered with the silvery white scales, the coalescence of the papules forming patches of infiltrated skin covered with the scales, and the involvement with preference of the extensor surfaces. The papules and patches are sharply defined in outline, the skin, which is dull red in appearance, thick and infiltrated. In the absence of other constitutional symptoms and

pathological conditions of the internal organs, with the onset, duration, course and lesions as in these patients, the disease of the skin could not possibly be due to any other affection. Psoriasis is often mistaken for eczema squamosum, syphilis squamosum and seborrhea sicca. The brief tabulated differential points as follows will readily assist you in making correct diagnosis:

Psoriasis.

- (1) The primary lesion begins as a papule, covered with whitish scales.
- (2) Itching slight, rarely intense.
- (3) Lesions sharply defined in outline.
- (4) Areas occur both large and small, and are usually round.
- (5) Involves by preference the extensor surfaces.
- (6) The lesions remain unchanged as a rule.
- (7) Eruption is always dry.
- (8) Areas are covered with many whitish scales.
- (9) The course is chronic.

Psoriasis.

- (1) History negative.
- (2) History of rheumatism, gout or gastro-intestinal catarrh.
- (3) Extensor surfaces of arms and legs nearly always involved.
- (4) Lesions regular in outline.

- (5) Scales are silvery-white and abundant.
- (6) Itching slight.

Psoriasis.

- (1) Eruption occurs anywhere on the scalp.
- (2) Scales dry and silvery-white.

Eczema Squamosum.

- (1) The primary lesion begins as an erythematous patch, a vesicle, pustule or moist spot.
- (2) Itching intense.
- (3) Affected areas gradually fade into healthy skin.
- (4) Areas are large and irregular.
- (5) Involves by preference the flexor surfaces.
- (6) The lesions change rapidly.
- (7) Eruption is usually moist.
- (8) Areas are covered with small yellowish scales or crusts.
- (9) The course is either acute, subacute or chronic.

Syphilis Squamosum.

- (1) History of chancre.
- (2) History of sore throat, syphilitic fever and other concomitant signs.
- (3) Extensor surfaces of arms and legs seldom involved.
- (4) Polymorphous arrangement of lesions.

- (5) Scales few and of a dirty yellow color.

- (6) Itching entirely absent.

Seborrhea Sicca.

- (1) Eruption usually attacks the scalp over the top of the head only.
- (2) Scales yellowish, fatty and greasy to the touch.

- (3) Scales consist of epithelial cells.

- (4) Base of eruption is inflamed and infiltrated.

- (5) Eruption also present over the body and extensor surfaces of extremities.

- (3) Scales consist of dried sebum.

- (4) Base of eruption is anæmic.

- (5) No eruption over the body.

Pathology.—A section of the involved skin under the microscope shows a hyperplasia of the mucous layer and of the normal constituents of the rete Malpighi. The increase occurs chiefly in the intercapillary portion of the layer, which, growing downwards, gives the appearance of increased size, which is not found to be increased upon close examination. In the advanced stages of the affection the superficial blood vessels of the corium become dilated; migration of the white corpuscles follows; the connective tissue and the blood vessels of the corium become dilated; migration of the white corpuscles follows; the connective tissue and the blood vessels of the corium become the seat of round-cell infiltration, which, together with effused serum, divides the connective tissue into open meshes. There is no involvement of the sebaceous and sudoriferous glands but there is hyperplasia of the internal root of the hair extending into the cutis.

Ætiology.—The cause of psoriasis has been claimed by some observers to be of a microbic origin. My observations do not lead me to confirm this belief, but I know that gout, rheumatism, scrofula and sometimes syphilis of hereditary origin are the chief constitutional ætiological factors. In these patients the cause, I believe, is due to the overindulgence of beer and the predisposition of rheumatism in the one patient, while in the other patient the only accountable ætiological factor is the overindulgence of rich foods. He takes great quantities of meat and drinks coffee excessively.

Treatment.—The treatment in these patients is proper diet and better habits. We will require both patients to live on an absolute milk-and-broth diet until the gastro-intestinal canal has had sufficient time to re-establish its proper functions.

The emunctory organs need stimulation so that elimination will be better carried on and the body rid of the stored up morbid material.

Internally, we will order for each of them the following combination:

℞ Argenti nitratis.
Extracti hyoscyami, ℥ gr. v.

Extracti gentianæ, gr.
 Misce. Fiant capsulæ No. xx.
 Signa. One capsule a half-hour before each meal.

The pill containing:

R Massæ hydrargyri.
 Extracti colocynthis co.
 Pulveris jalapæ, āā gr. xx.
 Olei menthæ piperitæ, m. ii.

Misce. Fiant pilulæ No. xx.

Signa. One at bedtime.

Externally a stimulating ointment containing:

R Hydrargyri ammoniati, gr. xl.
 Olei eucalypti, 13 iss.
 Unguenti aquæ rosæ.
 Unguenti Zincioxiidi, āā ʒi.

Misce. Fiat unguentum.

Signa. Apply locally twice daily to the parts affected.

Prognosis.—The prognosis as to life is good, and as to cure is guarded. Both patients can be cured, but it requires long and persistent treatment. All patients suffering from psoriasis can be cured if properly directed and suitable remedies are employed.—*The Medical Review of Reviews.*

The Treatment of Ringworm of the Scalp by the Application of X-rays.

BY

M. DRUMMOND SALE-BARKER, M. R. C. S., L. R. C. P.

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[Written for the "MEDICAL BRIEF."]

The great difficulty which has presented itself in the treatment of ringworm of the scalp has lain in the fact that the actual root of the hair, owing to its depth beneath the surface, is inaccessible to outward applications in the shape of ointments, and it is the root of the hair which is the seat of the fungus. Attempts at curing the disease by the application of inflammatory substances have not proved very satisfactory, and epilation by needling with croton oil is a long and tedious process.

To a child suffering from tinea tonsurans the enforced absence from school is a very serious matter, considering that the disease may run a

course passing into years. This disadvantage, at least so far as children of the poorer classes are concerned, has been practically done away with by the institution for London of the Metropolitan Asylums Board's Ringworm Schools at Banstead and Witham. The latter has, however, recently been devoted to other purposes. At these schools the children are enabled to go on with their ordinary school work, and at the same time to be treated for ringworm. Here, however, their stay used to run to several months, and often a year or more. When the X-rays were first introduced it was found that their application caused the hair to fall; and, one year after their discovery in 1896 Professor Freund first attempted the cure of ringworm by their use. Dr. NORMAN WALKER, of Edinburgh, was, I believe, also one of the first who tried to cure ringworm in this way. Numerous attempts have been made since, but they have been given up, owing to the difficulty of finding a satisfactory method of measuring the quantity and quality of the rays used.

It was left to Dr. SABARAUD, of the St. Louis Hospital in Paris, to give us a certain way of measuring the rays used in, and necessary for the cure of ringworm.

He does this by means of his "radio-chrometre X," which takes the form of a small pastille, composed of platino-cyanide of barium, which changes color under the action of the rays, according to the quantity and quality given off from the tube.

The action of the X-rays on the scalp is to cause an atrophy of the hair papillæ, and it is of the utmost importance that the dosage of rays given to the patient should be just sufficient to do this and no more, otherwise there may follow an acute dermatitis, causing either permanent baldness or at all events, a long period before the growth of the new hair.

The atrophy of the papillæ causes both the healthy and the diseased hair to fall entire, the latter bringing the ringworm fungus away at its roots, and it is important to remember that the rays do not kill the fungus, so each diseased hair as it falls may be a source of fresh infection elsewhere. It is, therefore, always wise to cover the whole head, whether the disease is universal or not, with an ointment which is prejudicial to the spread of the disease. With regard to the actual procedures of the X-ray treatment of ringworm:

A ten-or twelve-inch spark coil should be used, with a Makenzie Davidson mercury interrupter, working from four six-volt accumulators and a Muller regulating X-ray tube, the spark gap of which should be kept at two to three inches. The tube should be enclosed in a box or shield, lined with a substance made of a composition of India rubber which

is opaque to the rays, and a round opening in the box, or shield, which is kept at the proper distance by means of three small supports, allows the rays to pass through to the patient's heart. This distance should not be less than fifteen centimeters from the anti-cathode of the tube. The pastille of platino-cyanide of barium, is placed on a small metal slab (otherwise it would not change color, owing to the rays passing through and beyond it), at a distance of seven centimeters from the anti-cathode of the tube.

The current is turned on, and the exposure varies from twelve to twenty-five minutes, according to the manner in which the source of the rays is working. For instance, if the accumulators have been worked for some time, and are running down, the exposure takes longer than when they are freshly charged.

The sitting ceases when the pastille has changed to the tint B, of SABARAUD, which is gauged by means of a colored guide, inclosed with each booklet of pastilles. From the fourteenth to the seventeenth day after the exposure the hair commences to fall from the area treated, and in a month from the time of treatment the defluvium is complete, the part being devoid of hair and free from ringworm. It frequently happens that a few atrophied hairs remain in the scalp, but these are easily removed with forceps without breaking.

Some six weeks later, the growth of new hair is usually visible, the new hairs having grown from new papillæ at the bottom of the hair follicle.

SABARAUD, in Paris, works entirely from static machines, two of which at the St. Louis Hospital are kept going for eight hours a day, six days a week; one machine doing about twenty-five treatments a day, and the other fifteen. He marks out the patients' heads in circles, which necessitates twelve or thirteen different areas being treated in a universal case. He estimates that the average time taken to cure a child at municipal ringworm schools in Paris used to be two years, but it has now been reduced to about three months, and the average cost to cure each child has been reduced from two thousand francs to two hundred and sixty francs.

I usually mark out the patient's head into five areas, *viz.*, the top, the two sides, the crown, and the occiput; mark the areas to be treated with blue pencil, the rest of the head is then covered with lead foil, and the area to be treated exposed to the rays until the pastille has reached the correct tint. The essential points in this treatment are, I feel convinced, the correct change of color in the pastille, and keeping the patient's head at the proper distance from the anti-cathode. The hardness or softness of the tube is not such an important factor, except in so

far that a soft tube does the necessary work in a shorter time than a hard one.

Of some two thousand cases I have now treated at the Westminster Hospital and elsewhere, about fifteen per cent. have had to be treated a second time, owing to a slight overlapping of the lead foil, or to the exposure being insufficient to cause an entire defluvium. This may occur in cases which have undergone a considerable amount of previous treatment, with consequent toughening of the scalp.

The chief points in favor of this form of treatment of tinea tonsurans are:

1. *Rapidity*—A single exposure to each diseased area is usually sufficient, and as soon as the defluvium is complete the child is cured. This occurs in four weeks, the growth of the new hair taking another ten weeks or so. The average stay of children in the Metropolitan Asylums Board's Ringworm Schools has been reduced from twenty months to just over five months.
2. *Painlessness*—Neither during the actual exposure, nor at any subsequent time, do the patients feel any pain or inconvenience; provided, of course, that the exposure is not carried to excess.
3. *Certainty*—With the defluvium complete, the cure is complete, and I do not remember ever having heard of a case or recurrence, which was not obviously due to a new infection.—*The Medical Brief*.

OTOLOGY.

A Very Successful Method of Treating Acute and Chronic Suppurative Otitis Media and other Forms of Otorrhœa.

A. F. BLAGDON RICHARDS, M.D., B.C., (*Lancet*, Nov. 30, p. 1525.)

Pus will not drain away completely from the meatus, even if the head be inclined over to that side; it has to be swabbed or washed out. How much less likely then must it be that the middle-ear cavity with its irregular surface and recesses will empty itself even if there be a free incision in the membrane or a large perforation. An incision in the membrane before perforation has taken place will relieve pain and tension and will facilitate drainage, but it cannot be relied upon to produce complete evacuation in the tympanum and much less in the antrum. Paracentesis requires a certain amount of dexterity and experience to be done properly, and in children at least, a general anæsthetic is necessary. To carry it out at the right moment the patient must be frequently seen and examined and afterwards the incision has to be prevented from closing

too quickly. When suppuration has persisted for some weeks notwithstanding treatment, if the egress of the pus be difficult and if there be any decree of tension changes for the worse quickly supervene and serious symptoms may arise demanding immediate operation. Erosion of the lining membrane, caries, and even necrosis of the surrounding bone quickly follow the retention of offensive pus at any degree of pressure. But these cases are the exception and the majority run a much more chronic course, going on for years without producing any urgent symptoms. The pus drains away sufficiently freely for there to be no tension, but never quite completely, so that its irritant action prevents the mucous membrane from regaining a healthy condition and checks repair.

The writer has used a variety of antiseptic douches and powders without a satisfactory result. The instillation of preparations of carbolic acid and the salts of mercury appeared to be too irritating *if used sufficiently strong and peroxide of hydrogen was disappointing*. The writer instilled many other antiseptics without much effect until he commenced to use a concentrated solution of boric acid in glycerine and rectified spirits. Saturated aqueous solutions he had already tried for douching and instillation and also aqueous solutions with glycerine and rectified spirit in varying proportions, but the antiseptic effect was not sufficiently marked. By using glycerine as a solvent a far greater degree of concentration and activity could be obtained. The addition of rectified spirit increased the solubility of the boric acid, although that substance is not so soluble in alcohol alone as in glycerine. The formula eventually arrived at was as follows: boric acid 1 drachm, rectified spirits 2 or 3 drachms, and glycerine to make up 1 ounce.

In chronic cases the writer has found nothing approaching this solution in efficiency. It is non-irritant and non-toxic and can be used for long periods without unpleasant effects. Its action is prolonged owing to the large amount of boric acid present and also to its solution in glycerine. A feature that partly explains its activity is its power of penetration. It flows easily and will readily percolate through a small perforation. Its penetration is greatly aided by its high s. g. (about 1200). The s. g. of pus is only about 1030. It does not matter whether, as is nearly always the case, the tympanum be filled with pus which cannot drain away completely. If the patient's head be kept in the proper position during the instillation the drops will by reason of their s. g. gradually find their way into the recesses and irregularities both of the tympanum and the antrum, getting to the seat of the disease and displacing the pus which will float upwards towards the perforation. That the drops penetrate quickly into the middle ear and along the Eustachian tube is proved by the fact that

patients after instillation with the head held well on one side have felt a sensation of warmth in the throat and have tasted the drops at the back of the tongue. Should there be collections of inspissated pus the solution might still be able to penetrate round them, enveloping them, and rendering them less virulent. This solution, even when instilled freely into the middle ear, is painless. Children almost invariably allow the treatment to be carried out without resistance. Adults under treatment continue to use the solution for long periods without complaint of pain. In exceptional instances some pain has been felt for a little time after instillation. The writer then reduces the amount of rectified spirit as it is to this that the pain seems to be due.

Much depends upon the way in which the treatment is carried out. The writer instructs patients in chronic cases first to syringe out the ear with a warm aqueous solution of boric acid of the strength of 1 teaspoonful to the pint. This washes away from the meatus any pus, either fluid or inspissated, and allows readier access of the drops to the tympanum. After the syringing the meatus is emptied of any solution by inclining the head to the affected side and gently drying with a soft cloth. The head is then held so that the affected ear is uppermost and the drops, previously warmed, are freely poured in. When done in the morning the head is to be kept in this position for at least 10 minutes to allow the drops time to penetrate into the tympanum. But at night the drops are poured in when the patient is in bed and he is instructed to go to sleep on the unaffected side. Thus ample time is given at night for the drops to penetrate into the recesses of the middle ear. Later, when the patient turns in his sleep there is opportunity for the drops filling the tympanum to gravitate into the antrum. The treatment must be persevered with as long as there is any trace of discharge, at first twice or thrice daily, then once a day at night. It must be continued daily for 2 or 3 weeks after all trace of discharge has disappeared, then at lengthening intervals. If discontinued while there is even a trace of discharge the latter will probably soon recur owing to renewed sepsis. When both ears are affected the patient should vary the side he sleeps on, the drops being poured into the uppermost ear. Once the drops get into the tympanum they will remain even if that ear be lowermost owing to the difficulty of drainage described. If there should be any polypus or any masses of granulations in the meatus these should be removed by snaring or by touching with a caustic, such as chromic acid, at the commencement of treatment. In the majority of cases decided benefit results; some patients recover rapidly; in others the offensive smell to a large extent disappears and the discharge gradually diminishes, but complete cure proves difficult. In very

few is there no improvement, and in these operation has shown wide-spread mischief in the mastoid. If, therefore, in a case with a free discharge of foul and unhealthy-looking pus there should be no abatement after the treatment has been followed for some time the writer advises an operation.

In acute cases the same treatment is of the utmost value in preventing bacterial reinfection and decomposition of the discharge. In every case of acute pain and inflammation in the ear, when there is reason to suspect that suppuration may take place the writer instructs the patient to douche the ears twice or thrice daily with hot boric acid lotion and then instils the drops, afterwards lightly inserting a plug of wool in the meatal orifice. In this way the meatus is efficiently sterilised so that should pus make its way into it there is no chance of reinfection. If a discharge appears the syringing is to be continued 3 or 4 times a day, and after drying the ear the drops are instilled with the head well inclined towards the other side for some little time. In this way not only does the meatus act as a sterilised chamber into which any pus issuing from the tympanum is received, but the strong antiseptic solution getting into the tympanum renders safety against infection doubly sure. The natural perforation, though always small, does not heal too quickly and does not require to be kept open as is sometimes necessary if paracentesis is performed. The cases invariably do well; the inflammation rapidly subsides and the discharge quickly ceases; the perforation heals well and excellent hearing is regained in from 1 to 2 months.

Perfectly satisfactory results may be obtained in this way without paracentesis. However small the perforation may be, even when high up, the discharge does not become septic and healing rapidly takes place. The perforation at first is always small; only later, when the discharge is allowed to become septic and irritating, does further sloughing of the weakened membrane take place, leading to a large perforation incapable of healing. By preventing this septic condition the membrane is protected from further mischief and the small original perforation rapidly heals. In not a single case has the acute merged into the chronic condition when the writer has had the opportunity of treating the condition in the way described from the outset. If there were a distinctly bulging drum and great pain he might make an incision with antiseptic precautions in the drum to alleviate the pain. But to do this indiscriminately in every case of acute and painful inflammation of the middle ear would be a mistake. By the treatment advocated satisfactory results may be obtained without paracentesis and without constantly seeing the patient.

Often after an acute inflammation of the meatus resulting from a boil or sometimes from a small self-inflicted wound a small suppurating pocket persists. It generally occurs in the cartilaginous portion of the meatus and is accompanied by considerable swelling and pain. Often a small button of granulations forms at the orifice of the little pocket or even a small polypus. There are sometimes localised tenderness, redness, œdema in front or at the back of the auricle, and the condition may even be so severe as to simulate mastoid disease. It may persist for months, causing much anxiety, pain and deafness. Under frequent syringing and the free use of the solution after the granulations have been destroyed by chromic acid recovery quickly takes place.—*The Medical Review.*

PÆDIATRICS.

Asphyxia Neonatorum.

I. L. HILL (in the *New York Med. Jour.*, November 9, 1907) contends that the causes of asphyxia are found in factors which produce mechanical injury to the respiratory nucleus or interfere with its proper blood circulation. The causes of greatest importance are, compression of the cord, premature separation of the placenta and the arrest of the placental circulation by tonic contractions of the uterus, and direct interference with the foetal heart's action by pressure on the centers influencing its beat. There are different degrees of asphyxia depending upon the death of the narcosis of the respiratory center or the extent of the injury to it.

The author divides the cases into the usual sthenic and asthenic type.

The indications for treatment are, (1) the removal of the obstacles to respiration; (2) reflex stimulation of the respiratory center; (3) areation by artificial means; (4) prevention of loss of body heat; (5) stimulation of the heart and raising of the blood pressure.

To clear the upper nasal passages the author recommends blowing into the child's mouth while it is suspended, the stomach and trachea being compressed at the same time. In this way the current of air is forced outwards and mucus is expelled through the nose.

The author believes in immediate separation of the child from the mother and that delay in cutting the cord is never indicated. The Schultze method, in the writer's opinion, is undoubtedly one of the best. He refers to it as a "splendid procedure," but admits there are some bad features.

The Byrd method has the advantage that it can be performed with the child constantly immersed in a hot bath, and it allows other methods of stimulation to be carried on at the same time.

Direct insufflation, with the hand placed on the epigastrium of the child, is well spoken of.

PROCHOWNIK'S method, holding the child suspended and alternately pressing and releasing the thorax, is effective.

SYLVESTER'S method is not considered of particular value in young infants.

With regard to reflex stimulus, undoubtedly the strongest in its effect on respiratory function is LABORDE'S method of tongue traction. Ten minims of brandy, or 0.01 grains of strychnine, aid greatly in the pallid stage.

A definite line of action should always be carried out and the author recommends that as soon as the head is born the pharynx should be swabbed by means of the finger wrapped in gauze and the nose cleared by squeezing. After delivery the child should be inverted, its buttocks and back slapped briskly a few times, and a little cold water dashed in its face. Compression of the chest may be practised for half a minute. Mucus should be sucked from the pharynx by means of a catheter having a pipette attached. Blow into the child's mouth, pressing gently on the trachea and the stomach.

If the child is not breathing well at this time the cord should be tied and cut and the infant placed at once in a tub containing eight inches of water at a temperature of 108° F.

BYRD'S method of artificial respiration is now performed, without inverting the child at the end of expiration. At this time an assistant should make rhythmic traction on the tongue. After four minutes the child is removed from the tub and Schultze swinging practised for a minute. Usually the infant is breathing by this time, but it should be returned to the hot water and the chest massaged. It should then be submerged in cold water for a few seconds and a few slaps will be all that is required to cause a genuine cry. The BYRD method should be continued until both sides of the chest expand well.

If the child should not recover promptly, hypodermics of strychnine and brandy and the same routine repeated in due order.

Subsequently all these children should be watched carefully and the respiratory efforts stimulated from time to time.—*The Canada Lancet*.

Cystitis due to the Colon Bacillus in Infancy.

VALAGUSSA (*Il Policlinico*, May, 1907). The author reports 11 cases of cystitis due to the colon bacillus, observed in the pædiatric clinics of the University of Rome. Among these cases seven concerned girls and four boys. The pathogenesis of this disease still remains somewhat obscure. Meanwhile, this cystitis of early infancy is of greater practical importance than would seem to be the case. Numerous febrile affections with a protracted course and uncertain diagnosis are referable to infection of the bladder with the colon bacillus, and the true state of affairs can only be determined by the microscopical and bacteriological examination of the urine.

With special reference to the pathogenesis, the ascending route through the urethra is probably the most common mode of infection. The hæmatogenous route, through the circulating blood, and infection through the bowel walls, are likewise admitted, and have been demonstrated by animal experiments. The severer forms of the diseases occur in children of a few months up to three years of age, and are characterized by a high remittent and intermittent fever, serious disturbances of the general condition and a protracted course. The milder forms are observed in children between 5 and 11 years of age. In these cases the general condition is but little changed, the fever is moderate, sometimes absent, and the course is brief.

The treatment is symptomatic; diuresis should be stimulated by mild mineral waters; sabol and helmitol are indicated, in very small doses. In chronic cases, flushing with potassium permanganate solution 1:4000, may prove useful.—*The Medical Review of Reviews*.

New Method of Reviving the Apparently Dead Newborn.

M. OGATA, Osaka (*Hegars Beitrage*, 1907, Bd. xii, Ht. 1), for cases of slight asphyxia, practises slapping at regular intervals over the cardiac region, upon which hitherto pressure only was used. In more severe asphyxia, he employs swinging, holding the child with one hand by the legs, with the other behind the neck he bends the head forwards as far as the insteps and, in bad cases, removing the hand from the back of the neck, lets the body fall downwards again.

SCHWAB, Nurnberg (*Zentralb. f. Gynakol.*, 1908, No. 3), says that in OGATA'S method the nape of the child's neck should be held in one hand its ankles in the other, and its trunk bent over the lower part of its body until the upper part presses against the feet, the trunk should then be brought back into the horizontal position, or the legs may be bent upward.

so as to compress the thorax. He recommends the method as less dangerous than that of SCHULTZE, and has employed it successfully in two cases of most extreme asphyxia.—*The Journal of Obstetrics and Gynecology*.

The use of Sodium Citrate in Infant Feeding.

PRENTISS *American Journal of Obstetrics* (June). The author names a number of medical writers who claim that when sodium citrate is added to cow's milk the hard casein curds which form in the stomach are prevented. It has been found that one grain added to an ounce of cow's milk will produce the desired effect.

The hard casein curds are produced by the presence in the milk of caseinogen, hydrochloric acid and calcium salts. When citrate of sodium is added a chemical combination takes place with the calcium and less firm clots of sodium casein are formed.

Poynton urges its employment for the following purposes:

1. *Weaning healthy children*.—When small quantities are added to the milk the babies will digest a higher percentage of proteids, and thus better nutrition will result.

2. *To increase the amount of milk taken*.—All writers agree that when sodium citrate is used infants can take and assimilate a larger quantity of milk.

3. *Correction of milk dyspepsia*.—Sodium citrate given in full doses to a nursing mother will be eliminated in the milk and result in a less firm curd (grs. 15 at a dose). When given to the bottle-fed baby in doses of 1, 2, 3 or 4 grains to the ounce of milk the hard casein curds are prevented. Thus the cause of the greater number of cases of infantile dyspepsia is counteracted.

4. *Avoidance of scurvy*.—It does this because by its use fresh cow's milk can be taken.

ADMINISTRATION.—Begin with 1 grain to the ounce. If curds persist in the stools, or if vomiting or regurgitation of curdled milk occurs, increase the amount to 2 or 3 grains. When the infant is all right gradually reduce the dose to $\frac{1}{2}$ grain, $\frac{1}{4}$ grain to the ounce and then stop. The most convenient way to prescribe it is in a solution with 1 ounce containing the amount needed for 1 ounce of milk. One drop of chloroform to 12 ounces of the solution will prevent fermentation.—*The Canadian Practitioner & Review*.

Albuminuria in Eczematous Children.

(*La Pediatria*, September, 1907, p. 677).

LOKE, from observations made at Professor FERRE's clinic at Naples, concludes that: (1) Renal complications are common in children with eczema and who are at the same time dyspeptic, and are met with in 57 per cent. of the cases. They precede the symptoms of eczema, at least in those cases where the dermatitis is in relation with gastro-intestinal disturbance. (2) The albuminuria depends largely on toxic products of gastro-intestinal origin, on the alimentary albumin that has failed to be completely modified by the digestive juices, so altered as not to be perfectly assimilable by the cellular elements, and also in a small degree depends on an auto-intoxication caused by the skin lesions and some toxines and germs which have escaped the barrier of the lymphatic glands which surround the area of the skin lesion. (3) This albuminuria constitutes a real danger, inasmuch as it indicates a state of irritation of the kidney which may develop into nephritis should the exciting cause continue. (4) Cure of the cutaneous lesions alone will not effect the cure of, nor ameliorate the renal complication, which can be easily subdued by appropriate treatment such as milk diet and calomel, which also favourably influences the skin affection and hastens its disappearance. (5) Rapid recovery, the result of simultaneous cure of the eczema and of the gastro-intestinal disturbance, are not followed by general complications.—*The British Journal of Children's Diseases*.

THE ANTISEPTIC.

MAY, 1908.

Medical Education in India.

IT is unnecessary to point out that from the earliest times of which we have any record medicine as a science was taught in India. Aryan medicine, says a European authority, was in its time the most advanced system in existence, and there are grounds for the belief that the later systems of Greece, Egypt and Arabia were, if not founded on it, at any rate largely indebted to it, unless indeed both Hindu and Greek systems were derived from a common source. In all the departments of medicine the Aryans of ancient India showed their skill and genius, and although the vicissitudes of foreign conquest and a number of other causes interfered to break the continuity and turn the tide of progress back, records still exist in plenty to demonstrate that the Hindus of old possessed a good knowledge of the human frame, of the ills that the flesh is heir to and the methods to be adopted to remove them. But our present purpose is not to deal with the records of the past but to invite attention to the conditions of the present. Various have been the attempts made to improve and systematise medical education in India on western lines. In the early days of the last century, schools on a small scale were established in a few of the important cities to teach medicine and surgery. Since the establishment of the Indian Universities, Medical Colleges were started in the older Provinces and affiliated to the Universities. The latest attempt in this direction was made only very recently, when the authorities in the United Provinces with the help of the people were able to bring into existence the nucleus of a medical school fraught with immense possibilities to those Provinces. From the various Medical Colleges in India qualified medical men are turned out, who are making themselves useful to their fellow-men either as Government servants or as private medical practitioners. In dealing with this subject, a writer in a medical contemporary observes as follows:—"Not only have the public services been supplied, through the Medical Colleges and schools, with efficient and trustworthy, and, I may add, loyal officers, but the inhabitants of

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India have been provided with medical practitioners of a vastly superior stamp to those described by Dr. Francis Buchanan. Side by side with the development and growth of medical education has risen and grown that splendid scheme of public medical relief by means of hospitals and dispensaries, which has become a necessary and most beneficial element in the social and communal life of the people. The medical officers placed in charge of these institutions are permitted to engage in private practice, and their services are eagerly sought by those who are able to afford it. Graduates of the schools and colleges who have not entered the public service, or, having done so, have retired from it, have also in large numbers settled among their countrymen; and the "failed graduate," compounder, dresser, and even vaccinator, place their knowledge and skill, such as they are, at the disposal of the people." All this is more or less true. But occasionally the thought forces itself upon one's mind whether, without a radical alteration in the system of medical education now obtaining in this country, much further progress could be made. Medicine is a progressive science. New discoveries and new methods of dealing with old complaints are being constantly brought to light. Specialisation is a feature of the age, and in medicine it is as necessary as it is in any other branch of human activity. If these facts are admitted, as they should surely be, is it enough for the Indian Universities and the Indian Government merely to keep on the old lines of education without taking stock of the results already achieved and realising the needs of the living present? Is it contended that the instruction imparted in many of the medical institutions in India is sufficient to enable the recipients to keep pace with the progress of the science? It is one of the superstitions of the day that a member of the Indian Civil Service may be appointed to any place under the Government, judicial or executive, general or political, without any special qualification or training for it. Similarly it seems to be held that a member of the Indian Medical Service, even the latest addition to it, is presumed to possess all the qualifications necessary to enable him to occupy any chair in a Medical College. We do not hear of specialisation or special qualifications at all. A square man in a round hole is the rule and not the exception. But if the staff of a Medical College is recruited on this principle, can medical education grow and develop as it ought to? Has it grown and developed within the past decade? The numbers turned out by the Medical Colleges in India have increased. But the quality of the education and the nature of the training have practically remained stationary, though the stationary stage, as the Political Economist terms it, can never be reached in the progress of knowledge and of the arts and sciences—least of all in medicine. If the progress of medical education in India

cornea at all, except in a later stage when the endothelium of Descemet's membrane becomes altered. What is usually called "keratitis punctata" is a deposit of lymph cells on Descemet's membrane, due to irido-cyclitis. By the irritation of these deposits on the membrane, after a long time a real keratitis may spring from the posterior surface of the cornea.

Descemet's membrane protects the cornea from the aqueous humour, and LEBER'S theory is that the endothelial cells becoming deficient, the aqueous is able to penetrate into the tissues of the cornea, thus irritating it and rendering it cloudy. There is always a slight dulness of the cornea in every case of irido-cyclitis and in many severe cases participation of the cornea becomes pronounced. As a result of this, a yellowish-grey infiltration makes its appearance in the deeper layers of the stroma of the cornea. This clears up subsequently, but it always leaves a permanent opacity. Vision is almost, if not quite, annihilated, not only on account of the corneal changes, but also because of the products of the irido-cyclitis.

SCLEROTISING OPACITY (or Keratitis). This occurs as a complication of Scleritis—a scleritic nodule somewhere near the margin of the cornea seems, by its presence, to irritate the deeper layers of the corneal margin. A triangular opacity occurs, with its base at the margin and its rounded apex pointing towards the centre of the cornea. The base corresponds to the scleritic nodule. Sometimes there is more than one opacity. The opacity is gray or grayish-yellow in colour; the surface over the opacity is punctate but not depressed. This grayish opacity goes on to become an intense white, which may show little or no tendency to clear up. There is practically no vascularisation, and, if any at all, it is limited to the deepest layers of the cornea. Some cases very slowly undergo retrogression, changes after the opacity has reached its maximum density. The process of clearing is, as a rule, only partial; the apex of the opacity pointing to the centre and to some extent the sides of the triangular opacity, clear, but at the margin of the cornea corresponding to the base of the opacity, the opacity remains permanent, as a bluish white appearance, as if the adjacent sclera were continuous into the cornea.

The treatment of this affection simply consists of the Scleritis, which it complicates.

(9) **RIBAND-LIKE KERATITIS.**—"Keratitis Trophica" (Magnus).—This form of keratitis occurs as a transverse film across the cornea. It is an alteration of the cornea occurring in those eyes which have undergone some severe intra-ocular change, such as irido-cyclitis, sympathetic

ophthalmitis, glaucoma, etc. In many cases, but not in all, there are white calcareous deposits immediately underneath the epithelium. The appearance is generally that of a grayish-brown opacity. It is on the uncovered part of the cornea corresponding to the palpebral fissure, and in blind eyes where the cornea rolls up when the lids are apart the ribband-like opacity occurs on the lower transverse portion of the cornea. It is believed that this proof of trophic changes, in the large majority of cases the eyes having suffered in the general malnutrition, and this condition of the cornea is evidently a further manifestation of it. Exposure and slight trauma are, no doubt, contributing causative factors. There is practically no treatment. All one can do is to protect the eyes and attend to the general health.

2. **ECTASIES OF THE CORNEA.**—These consist of (a) Staphyloma Cornea, (b) Keratoconus, (c) Keratoglobus.

(a) **Staphyloma Cornea.**—This is always the result of a perforating ulcer of the cornea. It is a protuberant cicatrix which has generally originated in an iris prolapse, and it wholly or in part replaces the cornea. We have, therefore, to distinguish between total and partial staphyloma. In some cases according to SWANZY the iris is not involved in the cicatrix and there is a deep anterior chamber, but in the majority of cases the iris certainly is involved. The shape of the staphyloma is either hemispherical or conical. This applies especially to the cases of total staphyloma. The spherical is more frequent than the conical form. In many cases of total staphyloma the bulging may be so great that the form is somewhat more than hemi-spherical and the term spherical more nearly applies; in these cases the walls overhang the sclera. In nearly all the cases of partial staphyloma the shape is more or less conical, thus the reverse of total staphylomata where the common shape is spherical.

In recent cases the walls of the protuberance are thin, and the uveal tissue shows through, giving a darkish blue or slate colour appearance; there is a certain resemblance to a dark coloured grape, whence the name staphyloma (grapvin, a bunch of grapes). Subsequently thickening of the walls occurs and this appearance therefore becomes lost after a time, a thick white wall with occasionally a few dark spots taking its place. Several rather large vessels are to be seen running across the staphyloma; these are derived from the conjunctival vessels. Sometimes a staphyloma considered as a total staphyloma does not quite involve the whole margin of the cornea, the very outermost rim of the cornea may still be preserved. If, as is usually the case, the iris is involved in the cicatrix, the whole of the iris except its extreme periphery is taken up by it, and this peripheral portion is so closely applied to the posterior surface

of the sclera or sclero-corneal margin, that there is absolutely no anterior chamber.

The cases without involvement of the iris are probably those cases described by FUCHS as "keratectasia ex ulcere." In these there has been no perforation and therefore no iris prolapse; the bulging is due entirely to the weakness of the cornea where there is the ulceration. It differs from a staphyloma in its walls being composed of corneal and not cicatricial tissue. SWANZY has described a bulging (staphyloma) without iris prolapse and with a deep anterior chamber, but this is not at all common. Nearly all the cases I have seen have shown indication of iris prolapse, and this corresponds to the classical description of the affection given by FUCHS. Sometimes the staphyloma has the appearance of a blackberry; this is due to cicatricial bands having formed across it so as to give it a racemous appearance (*staphyloma racemosa*).

A staphyloma is spoken of as partial when it occupies only a part of the cornea, the rest of the cornea being corneal tissue. It appears as a small white conical protuberance, the portion of the cornea which is still left is nearly always transparent. The iris is drawn forward to the staphyloma, and thus the pupil is much displaced and what is seen of it is pear-shaped. It is very small and sometimes quite hidden by the staphyloma. The pupil may be closed up altogether if the whole pupillary margin be involved in the staphyloma.

Although staphyloma is the final outcome of corneal ulceration with prolapse of the iris, yet this, as a matter of fact, may take place in one of two ways. It may either be what is described as primary staphyloma, or it may be a secondary protrusion, after a time when the iris has healed in the wound with a seemingly strong and flattened cicatrix. In such a case bulging occurs, after a time, due to increased tension. In the so-called primary cases there is bulging from the first, little or flattening of the prolapse occurs, and the prolapsed iris remains protruded at the same time that it becomes converted into cicatricial tissue. There are two causes which prevent a flat cicatrix, and favour a staphyloma; one is a large perforation, and the other is improper behaviour of the patient. Constipation causes the patient to strain at stool; therefore the bowels should be attended to; after a perforation in adults especially, great physical exertion will cause a staphyloma, and in children crying and squeezing the lids tightly together. All these cause a temporary increase of tension, which does the mischief. The cicatricial tissue has no elasticity; it, therefore, does not return to its former dimensions after the elevation of tension has disappeared, but remains permanently distended. In the case of a secondary

protrusion the increased tension which does the mischief may be the result of the patient having gone back to work too soon; here the weak cicatrix gives way gradually. A protrusion is certain to occur if the whole pupillary margin is incorporated in the cicatrix, because, in this case, the anterior chamber is shut off from the posterior and there is, therefore, a continuous increase of tension.

A true staphyloma, accordingly, as Professor FUCHS says, necessitates an iris prolapse, the iris turns into cicatricial tissue and might be correctly called "Staphyloma Iridis." The transition from prolapse of the iris to staphyloma is very gradual, so that we may speak of a recent staphyloma or the same case may perhaps be spoken of as an old iris prolapse.

Of course the sight is greatly diminished, so that in total staphyloma it is reduced to the mere discernment of light from darkness, nothing more. If the pupil is pulled out of position in partial staphyloma the sight is greatly interfered with, but the sight entirely depends on the position of the staphyloma when it is partial as well as the way in which the iris is involved. But in every case, even in the most favourable, vision is more or less interfered with, because, even although you may have some of the pupil behind perfectly clear cornea, the cornea is pulled out of shape, resulting in a very difficult form of astigmatism to correct the curvature being irregular.

The disfigurement of a large staphyloma is very great, and the lids are prevented by the extreme bulging from properly shutting; thus the apex of the staphyloma becomes dry (xerotic) and so called atheromatous ulcers may appear. The lids may be pushed so far back as to cause the development of ectropion. One of the most important, if not the most important of all the accompanying symptoms of staphyloma cornea is the increase of intra-ocular pressure. This is shown by the increasing blindness, severe pain, and the increasing hardness of the eye. Sometimes this tension causes a thin walled staphyloma to burst; then there is a great discharge of aqueous, the eye is quite soft, and the staphyloma is collapsed. After a time this heals, and the staphyloma fills up again; much the same condition of things taking place as we have seen to be the case in fistula of the cornea. This process is repeated at long intervals until at last an attack of severe intra-ocular hæmorrhage occurs, and this may be followed by irido-cyclitis and even panophthalmitis. The eyeball then undergoes atrophy, and in this way a sort of spontaneous cure of the staphyloma takes place. Such a cure cannot take place without an immense amount of suffering to the patient.

In many cases of total staphyloma especially in young persons, the sclera gives way and bulges in the vicinity of the corneal staphyloma;

thus intercalary and ciliary staphyloma are developed. The entire eyeball will look very large and the choroidal pigment will be seen shining through.

The treatment of corneal staphyloma is first of all prophylactic, and when it has unfortunately developed, it is purely surgical, *i.e.*, operative. In an eye with prolapse of the iris every endeavour should be made to secure a flattened cicatrix. The surgeon should not suffer a staphyloma to develop before his very eyes. The patient should not be discharged too soon and should be warned against all severe physical exertion. Sometimes it is advisable to perform an iridectomy, if this can be done, before discharging a patient, and in this way effectually preventing any subsequent development of an ectasis. In a partial staphyloma an iridectomy, *i.e.*, removing a portion of iris subjacent to a clear portion of cornea, may be all that is necessary. For total staphyloma there are several operations, any one of which may be chosen. If there is not much intra-ocular tension the best of these will probably be DE WEECKER'S abscission operation. The conjunctival sutures are applied before the ablation of the staphyloma. The operation is begun by separating the conjunctiva from the eyeball all round nearly as far back as the equator. Four sutures of different colours are inserted about 3 mm. away from the margin of the wound, so as to keep the field of operation clear, the ends of two of these sutures, on one side, are laid over on the nose and on the other side laid over on the temple. The staphyloma is now removed by transfixing it with a BEER'S knife with its edge directed upwards, the upper two-thirds are thus separated off and the remaining third removed with the scissors. The sutures are now drawn together and tied. By subsequent tattooing it is possible to render the wearing of an artificial eye unnecessary. The other operations performed for total staphyloma are enucleation, eviseration and MULE'S operation. The chief indication for one or other of these operations in preference to the abscission is a great increase in the intra-ocular tension.

flea and rats play, if not the whole part, at least a greater part in the propagation of plague,¹ and that if rats are exterminated plague could be stamped out. With this view several methods of rat crusade have been set on foot in several parts of plague-stricken areas in India. Though the fundamental law of effecting a cure on the removal of cause holds good in several ills to which the flesh is heir, this is not easily applicable to the total annihilation of rodent or insect population—a part and parcel of creation of a Supernatural Power, whose goodness of purpose is unfathomable and whose law of compensation is not yet solvable.

Species of Rats.

For the purpose of this paper, a few words on the species of rats are necessary. In India, there are several species of them. For minute descriptions and differential diagnosis I will refer you to Doctor HOSSECK'S pamphlets on Rats. Speaking broadly, the five species of rats, viz., *Mus Rattus* (the black rat), *Mus Decumanus* (the grey rat), *Mus Musculus* (the mouse), *Nesokia Bengalensis* (the Indian mole rat) and *Nesokia Bandicota* (the bandicoot) are now known to be the hosts in plague. I give below, in a tabular form, the more important diagnostic points:—

	<i>Mus Rattus.</i>	<i>Mus Decumanus.</i>	<i>Nesokia Bengalensis.</i>
Tail.	Longer than the body and head together.	Shorter.	Shorter. The hairs on the tail are shorter and less numerous than <i>M.D.</i> and no brush of hairs projects beyond the tip of the tail as in <i>M.D.</i>
Fur.	Dark.	Ventral aspect light coloured.	Uniformly dark.
Rings in tail.	Well marked.	Not so well marked.	Well marked.
Ears.	Larger in proportion to its size.	Small.	Larger.
Head.	Narrow and elongated.	Same.	Broad and shorter.

There would be no difficulty in distinguishing *Mus Musculus* (the mouse) and the *Nesokia Bandicota* (the bandicoot) from the above species.

1. Reports on Plague Investigation in India : Journal of Hygiene : Vol. 6, No. 4, p. 425-483.

Habits of Rats.

We ought to know something about the habits of these rats in order to attempt to lay the axe at the root of their prolific tendencies. *Mus Rattus* is a house rat, living and procreating in the houses as human beings do. It is a climbing one. It also burrows into earthen floors and walls. Its nests are found in old refuses, under stacks of hay and fire-wood, on cupboards, little disturbed corners of store rooms, etc. The favourite haunts are mud houses, earthen floors, tiled roofs, stores of grain and dilapidated houses.

Mus Decumanus: shelters in sewers, storm water drains, stables, etc. Its burrowing power is far greater than that of the *Mus Rattus*. Hard materials such as brick and concrete can ill prevent its powers. It is a good climber.

The other species need not receive great attention as their part in the spread of the disease is of minor importance, though it should not be forgotten that they occasionally get infected. I lay stress on this point as rats of the species of *Mus Musculus* and *Nesokia Bandicota* are often received for examination. The failure to recognise this fact in a certain city endangered the life of three girls in a school therein.¹ The officer to whom a bandicoot was sent for examination thought that bandicoots as a rule do not get plague, and passed an opinion negatively. Subsequently three girls were affected with plague in that school and the infection was traceable to this source. These are not totally immune, but the susceptibility is one of degree. While *Mus Rattus* is greatly infected and infective, *Mus Decumanus* plays a part in a lesser degree and the other three play the least.

Infestation.

All the above species do not infest in the same proportion in all localities. For instance, in Bombay *Mus Rattus* and *Decumanus* were caught in the proportion of 7 to 3; in Bangalore, in the proportion of 100 to 1, and in Pudukotah probably in a still less proportion. In the latter town which is the capital of a small Native State, I examined a number of rats, but all were *Mus Rattus*. *Mus Musculus* and *Bandicota* while being rare in Bombay² are found in greater proportion in Bangalore. Having thus far studied the different species, their haunts and habits, we can now proceed to consider the several means at hand to destroy them.

1. *Mysore Standard*, Nov. 20th, 1907.

2. The Etiology and Epidemiology of Plague: A summary of the work of the Plague Commission, page 10.

3. *Idem*, page 11.

Trapping.

There are now innumerable varieties of traps—English, Foreign, and Indian-made. No conclusion can be arrived at as to which kind is best, as opinions differ. But this much may be said, that rats learn by their intuitive faculty that traps are snares which they soon fight shy of. Therefore trapping in the same locality persistently, has failed to return the same success as in the beginning of the crusade.

Poisoning.

Several poisons have been in the market. Amongst these poisonous compounds, the principal ingredients are Phosphorous, Arsenic, Strychnine, with some fat, flour or sugar. These poisonous pastes have not been popular, owing to the tremendous risk not only to other animals and birds, but also to human beings. The laying of such poisons requires great care on the part of the distributor. Besides, rats also do not easily take to such. The chemical poisons, therefore, do not help us much in rat destruction.

Rat Viruses.

We have, therefore, to turn to another mode of destroying rats. Bacteriological science helps us in this method. Probably in a short time, a virus will be found which will suit India, and with such powers as will beat out the music of the Pied Piper of Hamelin. Now there are several in the markets, but in my opinion, none vouchsafe sure success, specially as they are prepared in a land whose climatic influences and the habits of rats are different to those of ours. No doubt, the labours of PASTEUR, DANYSZ, NEUMANN and others have been partially successful in other lands, but not in India. The virus seems to lose its virility, owing to high temperature and the long interval allowed between its use and the time of culture.

The Preparation of the Virus.

The mode of preparing these viruses is simple. On the death of a rat, otherwise than by plague, pure cultures are made on any media, such as broth, agar-agar or gelatine. By pure cultures, I mean the cultivation of living germs, other than those causing the rat-disease being excluded by process of experimentation and elimination. The cultures are kept in the incubators at blood heat for a time when the microbes grow and multiply with characteristic rapidity. These are then mixed with some suitable rat food and sent out either in bottles or tins hermetically sealed. The several makes in the market, though manufactured on the same principle, are not, however, the same strains of a single virus. Each is a particular microbe, isolated from a special rat disease. For

instance, the "Laroche" Contagious Rat Virus of PASTEUR when examined under an Oil-immersion lens, is seen to contain minute rounded bodies occurring in pairs, and hence they are known as diplococci. The DANYSZ Virus was isolated in Australia from an epizootic in rats there; and when examined under microscope, is seen to be of rod shape, and therefore is a bacillus. Ratin of NEUMANN of Aalborg is also a bacillus, but different from that of DANYSS.

I have examined under microscope preparations of these Rat viruses stained with Gentian-violet.

But there are a few others¹ in the market which I have not seen and examined. They may, however, be mentioned. The Liverpool Virus is prepared by the Incorporated Liverpool Institute of Comparative Pathology in the Serum Department. There a special virus is also prepared for mice. Ratite is another virus prepared by the Pasteur Vaccine Company of Paris. Azoa of PARKER DAVIS is another. There may be others which have not come to my notice.

Properties of the Viruses.

These preparations are reputed to start a deadly disease amongst the vermins. The habit of cannibalism amongst rats is said to spread the disease amongst them.

The Unsuitability of these Viruses for India.

Till now we have considered the mode and the principle of the viruses. We have now to consider their uses for destroying rats in India. Arguing from a common-sense point of view, I do not think that any of these viruses will be suitable to the rat destruction in our land. Indian rats are peculiar, and their susceptibility to particular diseases varies in different parts and even at different seasons in the same locality. Added to this view, when we take into consideration the result of experiments conducted by the makers of these special viruses, it adds weight to my argument.

DR. DANYSZ'S virus was largely used at Sydney. He himself was present to watch the results. He brought the virus himself, and baits were prepared according to his instructions. "It was found that the results were meagre."²

The result of experiments conducted by the maker of Ratin showed a wide difference in its destructive power amongst different species of

1. The Sanitary Record, Vol. XLI, No. 946, p. 48.

2. The Indian Medical Gazette, Vol. XLIII, No. 2, p. 67.

rats. In the case of grey rats, 90 % were killed by it, whereas not more than 42 % of black rats were affected.¹

Thus it will be seen that these viruses are not of equal merit for all climates.

A Suggestion.

The only suggestion which I wish to make in this connection is that if any reliance has to be placed on any virus for the destruction of the rats in India, the virus must be prepared from the rat disease peculiar to them here. I will go even a step further and suggest that the virus must be prepared from the disease prevalent amongst the rats of the particular locality in which the virus has to be used for rat destruction. With the view of finding out the epizootical disease which prevails in Mysore parts, I was making some observations amongst the field rats in Kadur and Birur when I was on inoculation duty there, but, owing to an unforeseen circumstance, I was obliged to postpone my enquiry in the matter. I wish that those who have better opportunities will pursue such an enquiry. When such an epizootic is found, if the fact be reported to the nearest laboratory, I am confident that attempts will be made to isolate the bacillus and to manufacture a virus out of it.

Our Contemporaries.

MEDICINE.

Recovery from Diabetic Coma.

It is undoubtedly rare for a patient suffering from diabetes mellitus to reach the stage of coma, and yet to be saved from death for the time being. In the following case it can scarcely be doubted that the treatment adopted was the direct cause of the recovery:—

The patient was a man aged 25, who developed the symptoms of diabetes mellitus acutely, and without apparent cause. He had been quite well until three weeks before he was seen, and then suddenly began to pass large quantities of urine, to waste, and to become very weak. He could name the exact day when the trouble set in, as though he had not been diabetic one day, and had developed the disease by the next. So sudden an onset is unusual.

He came under observation in the hospital on March 11. He was obviously thin, wasted, and muscularly weak. His skin was dry and

1. The Sanitary Record, Vol. XLI, No. 946, p. 48.

harsh, but his tongue was moist and clean. No abnormal physical signs could be detected in the cardiac, pulmonary, or alimentary system.

His urine had a specific gravity of 1040, with the typical colour and smell of a diabetic urine. It contained 33 grains per ounce of sugar; and as 118 ounces of urine were passed in the first twenty-four hours, he was passing about 3,894 grains of sugar per diem. Diacetic acid and acetone were both present in abundance. The retinae looked natural on ophthalmoscopic examination. There was none of that golden yellow appearance of the retinal blood-vessels, such as has been observed when diabetic lipæmia exists in certain cases of threatening coma. The patient's knee-jerks could not be obtained, but there was no other evidence of peripheral neuritis. Previous to admission the patient had already been upon a restricted carbohydrate diet for a week, so this was now continued. Both appetite and thirst were extreme.

Two days later, on March 13, the man was noted to be drowsy, and his tongue, which had hitherto been moist, was now dry, red and shiny—perhaps because he had begun to breathe through his mouth as in air hunger. Next day he complained of a gnawing epigastric pain. This is always a very dangerous sign in one who is the subject of diabetes mellitus. It happens again and again that the first notice of imminent coma is given by what the patients themselves often describe as a “bilious attack.” The man, who had hitherto eaten his food voraciously, now refused to eat anything, and he began to be very distinctly drowsy. The quantity of urine fell from above a hundred ounces down to 42 ounces in the twenty-four hours. The bowels had not been opened for two days, so four grains of calomel were given by the mouth, followed later by a soap and water enema, which produced a very good evacuation.

The drowsiness, however, steadily increased, the patient first ceasing to take any notice of things going on near him, and shortly afterwards becoming so deeply comatose that he could not be roused by any ordinary means. The breathing was at the same time typical of air-hunger, the long, deep shining respirations following one another at slow regular intervals. There was no particularly ethereal odour in the breath, but the general condition of the patient was that of typical diabetic coma.

From the time that this coma threatened, active steps to combat it had been adopted. Sodium bicarbonate was administered both orally and per rectum in heroic doses. By the mouth it was given as a drink, of the strength of one drachm to the pint of water, and the patient was supplied with as much of this as he could be got to swallow. The rectal injections were given slowly through a funnel and long, narrow rubber

tube, in a similar way to that in which large nutrient enemata are administered, the solution used being one ounce of sodium bicarbonate to each pint of water, at body temperature. Two pints of this solution were given each time, and repeated every four hours. The whole of it was retained, so that in twelve hours the patient had had six ounces of sodium bicarbonate by the bowel, and nearly an ounce more by the mouth. None was given hypodermically by infusion.

Next day, on March 15, the patient had emerged from his coma to such an extent that he ate solid food when it was placed in his mouth. He was still very drowsy, but he was sufficiently conscious to be able to tell onlookers that the dull pain in his epigastrium had almost gone. The rectal injections were continued for four days, and the alkali by the mouth was administered to the extent of two pints of the solution daily for a week longer. The coma had now long since disappeared, and the man was gaining weight. He left the hospital, still with sugar, diacetic acid and acetone in his urine, but greatly relieved for the time being.

Diabetic coma never comes on unless there is either diacetic acid or acetone, or both, in the urine; and it is generally held that these substances, or others allied to and associated with them, are the immediate cause of the coma. The latter is due, apparently, to a poisoning by acids—an “acidosis,” as it is called—which results from abnormal metabolism in diabetic patients, and it is to neutralise these acids that the large doses of sodium bicarbonate are given. Of course, if the patient's tissues continue to manufacture the acid products with unabated vigour, their neutralisation by alkali can effect but very temporary relief. If, on the other hand, there is an abatement in the acidosis, the administration of the alkali may just serve, as in the above instance, to tide the patient over a period of extreme danger.

It is wonderful how much of a drug can be borne by a patient who is in need of it. A normal person would probably have exhibited acute symptoms of sodium bicarbonate poisoning if he had received as much of it in a given time as this patient did. Vomiting would almost certainly have occurred, and the rectum and colon would soon have refused to retain the injections. Neither vomiting nor diarrhoea occurred in this patient, however. Alkali was required, and comparatively huge quantities of it were utilised.

The case teaches that whenever a diabetic patient is threatened with coma, sodium bicarbonate is the drug to give, and that in urgent cases the rectum is a very valuable channel for its administration.—*The Hospital.*

Typhoid Fever in the Aged.

BY

A. S. HAMILTON.

Typhoid fever in the aged is supposed to be very rare. But MANGES found that of 3,634 deaths in New York, from 1887 to 1896, 96 (2.6 per cent.) were in persons over the age of 65, and 414 (11.3 per cent.) were in persons aged between 45 and 65. He thought that the disease was not infrequent in the aged and, as the course was often atypical, was overlooked. Prof. OSLER states that in 829 cases of typhoid fever admitted to the Johns Hopkins Hospital up to May, 1899, 6 of the patients were between the ages of 50 and 60, and 6 were over 60.

The writer has found that out of a total of 38,885 deaths from typhoid fever in Chicago, Boston and St. Louis in 1897-1901, 369 (9.5 per cent.) occurred in persons over the age of 50. In an outbreak of typhoid fever at the Hospital for the Insane at Independence, Iowa, he found that a number of persons well advanced in years contracted the disease. Out of a total of 183 cases, 27 (14.3 per cent.) occurred in persons over 50. Of these 6 occurred at the ages of 50 to 54; 8 at the ages of 55 to 59; 9 at the ages of 60 to 64; 1 at the age of 65; 2 at the age of 71; and 1 at the age of 78.

A study of the outbreak shows the following differences from the disease in earlier life. The ordinary signs—type of fever, rose spots, enlargement of the spleen and epistaxis—were frequently absent. On the other hand, complications which frequently are misleading in diagnosis were often marked. The ordinary diurnal range of temperature was much increased. The temperature was remittent, even from the onset; in 7 cases it was intermittent. Usually it did not rise above 102° or 103°. Defervescence began early, so that by the eighth to the eleventh day the temperature was normal or almost so. But it rarely remained so, and there was a marked tendency to great prolongation of febrile movement. In 11 cases there were recrudescences. Chills and sweats were more common than in the younger. In 6 cases there were rigors accompanied by profuse perspiration. Disturbances of circulation were common; in 70 per cent. of the cases the pulse was described as bad at some time. Disturbances of the respiratory system were also common. Cough was present in 90 per cent. and rales were observed in a number. Pneumonia occurred in 4. In one of these there was severe pleurisy. Pleurisy also occurred in one case without signs of pneumonia. Disturbances of the alimentary tract were frequent and severe. The tongue did not differ from the ordinary one except that it seemed a little more tremulous, more

deeply furrowed, and more often dry. Eleven of the patients vomited at some time, and some to a marked degree. During the prodromal period constipation was commoner than diarrhoea, but as soon as the disease was established diarrhoea became common. In 18 cases tympanites was marked and in one case was very great. This large proportion was probably due to the flabby condition of the tissues. Hæmorrhage from the bowels occurred in 3 cases—in one patient once, in another thrice, and in a third 4 times. Perforation, which proved fatal, occurred once. Enlargement of the spleen, said by some writers to be uncommon, was found in 40 per cent. In 3 cases jaundice was present with symptoms of cholecystitis—a high proportion. In 22 cases in which the urine was tested for albumin the latter was found every time. Casts were present 14 times and absent 8. In a considerable number of cases there was retention of urine, requiring catheterization, and, probably partly in consequence of this, pus in considerable amount was found in the urine of many patients, though this was present several times when no catheter had been used. Rose spots were seen in only 5 cases. Convalescence was tedious in consequence of the prolongation of slight pyrexia mentioned above. The mortality was 22 per cent.

The treatment in most respects was such as would have been employed in younger individuals, with special watchfulness for cardiac, pulmonary, and genito-urinary complications. In the milder cases little is needed to combat the fever, as it seldom rises high. For the more serious cases bathing of some sort was necessary. In some cases tub baths were borne as well as in younger people, but in a number the patients shivered so excessively after the bath and became so cyanotic that it was not used at all in 7 cases, sponge baths being used instead. For the diarrhoea intestinal astringents and antiseptics were found beneficial, and for the bladder disturbances urotropine was unusually satisfactory. In those whose bladders were healthy at the onset of the disease, 7 gr. of urotropine every 4 hours or less frequently almost invariably produced a favourable result in 2 to 4 days. In cases of chronic bladder troubles the results were less satisfactory. To prevent pulmonary complications during convalescence the patients should sit up in bed as soon as possible.—*The Medical Review.*

Hæmorrhages from the Mucous Membranes and into the Skin in Bright's Disease.

D. RIESMAN (*American Jour. of Med. Sciences*, Nov., p. 709).—Though hæmorrhages into various parts of the body in Bright's disease are well

recognised, severe bleeding, such as occurred in the following cases, is very rare:—

A Russian sailor, aged 30, was admitted to hospital on Mar. 21, 1904. He had had three attacks of nephritis—the first 7 years before characterised by swelling of the feet, and the second 2 years later, in which the face chiefly was swollen. The third began 3 weeks before admission with swelling of the face, but he was able to work until a few days before admission.

He was pale and ill-nourished and complained of headache. The face was swollen, especially around the chin and left eye and in the left malar and temporal regions. The left eye was inflamed and the conjunctiva was chemotic. The heart was enlarged, the apex beat being in the sixth interspace in the nipple line. The first sound was muffled and the second accentuated. The radial and temporal arteries were thickened. The red corpuscles were 2,350,000; the white, 15,200; and the hæmoglobin was 50 per cent. There was no œdema of the legs. The right pupil was dilated and immobile, the cornea was insensitive, and the anterior chamber was very shallow. The tension was + 2. The fundus gave a dull reflex but no details could be obtained.

On the 24th he began to bleed from the mouth. It was thought that a carious tooth had wounded the cheek, but though the sharp edge of the tooth was broken off and styptics were applied the bleeding continued. For the affection of the eye a leech was applied to the temple. When it dropped off free bleeding from wound occurred and required a collodion dressing to check it. On the 26th the patient had a convulsion and was bled to 15 oz. and given an intravenous saline injection. On the 29th a hæmorrhagic effusion occurred and extended from the right third rib to the costal margin and there were a few purpuric spots on the right arm. Hiccough began and he gradually passed into a state of stupor. The effusion increased and the spots on the arm became more numerous. Blood ran from the mouth and the breath was very foetid. The urine contained 1.5 parts per 1000 of albumin, red corpuscles, and granular and hyaline casts. On the 31st a systolic murmur, most intense in the third left interspace, was heard. Despite active treatment by hot packs and stimulants the pulse gradually grew weaker and death occurred 11 days after admission. A necropsy could not be obtained.

A publican, aged 55, was admitted to hospital on Sept. 2, 1904. He denied intemperance. Hæmorrhages from the mouth and bowels began. He became stuporous and delirious. The breath had a urinous odour and no urine was said to have been passed for 48 hours. The mucous membranes were pale and the tongue and teeth were covered

with recent clots. The heart sounds were clear, the pulse was slow and feeble, and the pupils were widely dilated. Urine, drawn off with the catheter, had a s.g. of 1010 to 1012 and contained albumin and red and white corpuscles. The red corpuscles were 4,440,000; the white were 6,680; and the hæmoglobin was 55 per cent. Death in convulsions occurred on the 10th, the bleeding continuing until the end.

NECROPSY.—The heart was moderately dilated. The kidneys were enlarged and covered with cysts; the capsule stripped with difficulty. The cortex was almost absent and there was marked fibrosis. The gastro-intestinal tract was normal.

SAMUEL GEE has described 3 cases of purpura in children suffering from nephritis (St. Bartholomew's Hosp. Rept., 1880). The onset was marked by diarrhoea, with blood in the stools; in 2 cases there was also vomiting. The purpura occurred in repeated accesses, but finally ceased, although the albuminuria persisted. The prognosis of cases of nephritis in which severe hæmorrhage occurs is bad.—*The Medical Review*.

Causation of Sleep.

The various theories as to the causation of sleep are, according to Oldham (*Dublin Jour. of Medical Sc.*, Nov., 1907) summed up as follows: First chemical influences which directly diminish nerve activity or reflexly affect the circulation of the brain. Second, circulatory influences,—fatigue of vasomotor center from constant activity. Third, histological influences, breaking the chain of neurons either by shrinkage of the nerve cells during fatigue, retraction of the dendrites or blockage of the insulating neuroglia. Fourth, molecular influences whereby sleep becomes the natural expression of a phase of decreased excitability due to a predisposing cause, viz., the removal of a certain amount of nerve tonus by the voluntary cutting off of sensory stimuli; and an exciting cause, viz., the setting in of an anæsthetic tide at the close of the day's katabolism as a result of the self-regulating adjustment of the cell. The molecular hypothesis appears to the author by far the most satisfactory.—*The Dietetic & Hygienic Gazette*.

SURGERY.

The Diagnosis and treatment of Adenoids.

The diagnosis of adenoids cannot be made with certainty from the facial appearance alone. The so-called "adenoid facies" is merely the appearance produced by nasal obstruction, and, while it is true that adenoid vegetations are by far the commonest cause of nasal obstruction

in children, yet other forms of nasal inadequacy must be excluded before the diagnosis can be made. Enlargement of the turbinals and genuine hypertrophic rhinitis are not uncommon in children, and, though usually associated with adenoids, require to be treated if a satisfactory result is to be obtained. So also, septal deflections, hæmatomata, etc., occasionally occur even in quite young children, and, therefore, the nares must always be carefully examined before an operation for adenoids is undertaken. A rare cause of nasal obstruction in children is congenital malformation of the posterior nares or choanæ; one or both may be completely occluded by a bony partition, or the occlusion may be partial, leaving an opening of any size from the minutest orifice up to the normal. Much more common, and, therefore, more important, is a general smallness or insufficient growth of the cavity of the naso-pharynx, the roof of which, instead of being properly arched, stoops steeply to the posterior wall. In such cases any adenoid which is present should be thoroughly removed, but it is important to recognise the condition before operation, that the parents may be warned, for it is one of the causes of dissatisfaction after the operation. In older children, above the age of 10 or 12, the posterior ends of the inferior turbinals are often hypertrophied as the result of catarrh set up by the adenoids; if they have not been seen with the rhinoscope mirror they should be examined with the finger during the operation and, if enlarged, should be removed with a snare.

METHODS OF EXAMINATION.

Whenever possible, adenoids should be examined for and diagnosed by posterior rhinoscopy, and this is usually possible in tractable children over the age of three or four. A very rapid examination is sufficient. The prominent posterior border of the septum is sought for and brought into view. This is like a slender column which, above, expands fan-wise into the concave vault of the naso-pharynx. If, however, a pad of adenoids be present, the concave expansion is interrupted by a hump or convexity, and, the larger the mass of adenoids, the lower does this hump descend, so that it may even hide the upper half or more of the septum. The presence of adenoids may thus be rapidly diagnosed at a glance, but it requires some practice to estimate the size of the mass and to determine whether it is large enough to indicate removal. From the position of the mirror the adenoid is seen much foreshortened, and appears smaller and less obstructive than is actually the case.

With nervous and frightened children such an examination is impossible, and it is better to proceed at once to digital exploration. The child is seated, the examiner stands at his right side and places the left arm round his head. The mouth is kept open by pushing in the left

cheek between the teeth with the left hand; another excellent method is to retract the angle of the mouth with the left forefinger, and to introduce the tip of this finger between the jaws behind the molar teeth. It is impossible to get bitten in this way, and there is no risk of injury to the patient's cheek. The right forefinger is now passed rapidly to the right faucial pillar, along which it finds its way gently upwards into the naso-pharynx. It should not be passed up in the middle line, for contraction of the palate makes this difficult, and the pharynx is likely to be scratched. The soft and usually plated feel of the adenoid can readily be recognised, and the finger should be removed instantly, for the patient's sensations, though not painful, are extremely unpleasant. It need hardly be said that the presence of blood on the examining finger is of so diagnostic value, but is a proof rather of the examiner's roughness than of the presence of adenoids.

Here again, though the presence of adenoids can be readily detected, the amount is more difficult to determine. Some quantity of lymphoid tissue is normal and anatomical on the naso-pharynx of children, and should only be removed if it causes symptoms. If these symptoms are only recent they may be due to a coryza, for a small amount of adenoid when inflamed becomes enlarged to a considerable size; in such cases the effect of a simple nasal lotion should be tried before resorting to operation.

INDICATIONS FOR REMOVAL.

When adenoid hypertrophy causes nasal obstruction, even if nocturnal, it should be removed, and this should be done early, before the age of seven or eight, for with the second dentition the jaws develop rapidly, and irremediable damage is often done by nasal obstruction at this period. On the other hand, the operation should not be performed in early infancy unless the obstruction be so great as to interfere with suckling, or unless there be suppurative otitis media.

The vegetations tend to shrivel about puberty, and, therefore, an adenoid which causes only slight obstruction in a patient approaching puberty may well be treated merely by nasal lotions. Sometimes, however, the growths remain large and obstructive far into adult life; more often the shrivelled and crenated mass harbours discharges, and keeps up a catarrhal inflammation, and for this reason has to be removed. Indeed, the influence of adenoids in causing and maintaining suppurative and catarrhal ear-disease is due rather to the catarrhal condition of the naso-pharynx than to any mechanical obstruction of the Eustachian tubes; from which it follows that aural discharge or deafness, even slight deafness noticeable only during a cold, is more important indication for the

removal of adenoids than is nasal obstruction; it should be remembered that adenoids may be present and cause aural disease, although nasal respiration is perfectly free.—*The Hospital*.

The Operation for Adenoids.

The removal of adenoids is generally considered to be a very simple and easy operation. It is certainly easy, but it becomes so only by careful attention to every detail, and after considerable practice. The many different positions and methods of procedure which have been recommended are sufficient proof that the operation is not one of absolute simplicity. Indeed, everyone who has had to teach the performance of this operation to students, and who has had the opportunity of seeing the after-results of a number of cases in a large out-patient department, will agree that to remove adenoid vegetations with thoroughness and certainty is not always a perfectly simple matter. Considerations of space will not permit a discussion of all the methods which have been, or still are, employed; but it may be useful to describe the mode of procedure which is coming more and more into general use among specialists, and to give a few hints about those details which are of value in actual practice.

The risk of the entry of blood, or even of portions of the growth, into the lungs is a very real one, and should ever be present in the mind of the surgeon about to perform any operation, however trivial, on the upper-air-passages under anæsthesia. Even if the patient be saved from immediate suffocation after this accident, pneumonia is very likely to ensue, and that of a very virulent and fatal form. This is no imaginary danger, but has been known to occur after the removal of a small part of the inferior turbinated body. It is, however, a danger which can easily be averted, partly by avoiding deep anæsthesia, but chiefly by the correct position of the patient. At one time it was customary to place the patient on the back with the head extended and hanging over the end of the table. This position has been abandoned by most operators, for congestion and hæmorrhage are thus increased; the adenoids lie in a kind of hollow above the anterior tubercle of the atlas, the prominence of which often interferes with the sweep of the curette, and hyperextension of the cervical spine increases this difficulty. It is better to allow the patient to lie straight upon a flat table and to make the first sweep with the curette in this position, for then it is easy to keep the middle line, to use sufficient force, and to avoid injury to neighbouring structures. Immediately after the first sweep has been made the patient is turned completely on to his right side; as he is now lying on his shoulder, without

a pillow, the larynx is at a higher level than the naso-pharynx and blood cannot enter the air-passages.

The best anæsthetic is the chloroform-ether mixture for children, and chloroform for adults, and in all cases the anæsthetist should have a Junker's apparatus ready so as to be able to continue the administration if required. It is sometimes the practice to give gas in the sitting position to patients over twelve or fourteen, but this is not to be recommended. Gas is in general a bad anæsthetic for cases of nasal obstruction; it increases congestion and hæmorrhage, and, though the anæsthesia is long enough for the skilful removal of adenoids and tonsils, it is insufficient to deal with tags which may be let or to remove the posterior ends of the turbinals, which are so often enlarged in older patients who have adenoids: it is quite unsuitable for young children. If gas be used at all, it should be given in the recumbent position; the sitting posture allows the blood to run from the mouth if the head be bent slightly forward; but the rigidity which often follows gas, especially in cases of obstruction, adds considerably to the difficulties of the operation.

The old Gottstein curette has several defects which have been corrected in later modifications. The instrument should have a straight back, and only be curved to a little beyond a right angle, and, above all, its arms should be parallel and not Y-shaped, for in the latter form vegetations tend to be pushed away from the knife, and the extremities of the cutting blade are not so completely under control, and may injure the Eustachian tubes. Several good patterns have a hinged cage attached to the blade; this contrivance has the great advantage of bringing out the mass of the adenoid entire, but it is not essential, for the growth can be brought out whole by an unguarded curette if the proper swing be used.

The patient is placed on the back, with the head quite straight, and the mouth opened widely with a gag. Doyen's pattern is the best if tonsils have also to be removed; it should be placed on the left side of the mouth, and its plates should be well to the left of the middle line, so as to allow the curette to be depressed on to the central incisor teeth. The operator stands at the patient's right side, and the nurse at his left. While the left forefinger retracts the soft palate, the curette is passed behind, held firmly like a dagger; the handle must be fully depressed, and the cutting-blade raised until it meets the back of the nasal septum, for the commonest error is to leave behind the upper and most obstructive part of the growth. The shaft of the curette is now raised against the upper incisors, while the blade sweeps down the naso-pharynx; it must

not be dragged straight downward or tags will be left ; but the cutting ends should be made to describe the segment of a circle about the handle, so that the knife leaves the pharynx at an angle, cutting cleanly through the lower end of the growth and bringing it right out of the mouth. The patient is now turned on to the right side, and this must be done at once, whether the growth has been successfully removed or not. Adults who are heavy to move may be placed at the outset upon the right side if the surgeon stands behind the head and holds the curette in the first, with the thumb nearest the blade, he will find that he can make the requisite powerful circular sweep without much difficulty. The nasopharynx can now be explored at leisure with the finger, and a cageless curette may be introduced if necessary, to complete the removal. In patients over the age of ten or twelve a couple of snares should always be ready ; the posterior ends of the turbinals should be examined, and removed if found enlarged ; hypertrophy of these parts is very common in cases of adenoids of long standing, and is the chief cause of disappointment after the adenoid operation. The tonsils, if enlarged, should then be removed with a plain spade guillotine without barbs, while the patient is in the lateral position. It is most advisable to use a good light and a forehead mirror, or, better still, an electric head-lamp, and to examine the throat carefully before the patient becomes conscious, making sure that the tonsils are completely removed, and that no tags of adenoid remain. The latter may most readily be removed with punch-forceps. There is no need for hurry during this latter part of the operation ; more anæsthetic may be given if required, and the patient is in a perfectly safe position. It is very unpleasant to have to remove a tag from a nervous frightened child after he has come round, more especially as the parents may believe and repeat that "the first operation was unsuccessful, and had to be repeated."—*The Hospital*.

Tertiary Syphilis 54 Years After Infection.

L. M. BONNET (*Lyon Medical*, Nov. 3, p. 745).—A man, aged 79, entered hospital for 2 ulcers on his right forearm. He contracted syphilis at 24 and was treated with mercurial pills for a month. During the intervening 54 years he had been entirely free from symptoms. Two months before admission a firm painless swelling formed on the anterior surface of the right forearm. This was followed by a second nodule 15 days later on the inner border of the forearm. Both lesions were at first hard, and the overskin was red and glazed. They then ulcerated in the centre, giving issue to some whitish material, but the process was entirely unaccompanied by pain. On the site of the swellings were irregularly

rounded, punched-out ulcers with all the characters of ulcerating gum-mata. Forty-five gr. of iodide of potassium were given daily and in 12 days the ulcers had nearly healed.

The frequency of tertiary lesions seems to depend on insufficient treatment of the disease at the beginning and benignity of the secondary period. Both factors were present in this case. The period of 54 years which elapsed since infection is very exceptional. Among 4,400 cases of tertiary syphilis, FOURNIER found only 3 in which the history of syphilis extended over 50 years, and the latest case of tertiary syphilis he had observed occurred in the 55th year after the chancre.—*The Medical Review*.

Amyl Nitrite in Hæmoptysis.

A. LUNDIE, M. B., Ch. B. (*Lancet*, Feb. 8, p. 427).—In a case of profuse hæmoptysis the writer freely administered amyl nitrite on a towel, like chloroform, without regard to the official dosage, being guided entirely by the pulse and general condition. His object was to reduce the blood pressure and produce temporary syncope. After a stage of excitement transient anæsthesia was quickly produced. The pressure in the radial artery was much lowered and the pulse rendered almost imperceptible. At this stage the administration was stopped and the respirations became very shallow. The result was good and satisfactory ; recovery followed.—*The Medical Review*.

THERAPEUTICS.

Fasting as a Therapeutic Measure.

Fasting has been empirically used since the early dawn of history. In instances it has been practised for notoriety, as in the case of TANNER some years since, who, it is claimed, went without food for forty days. In other cases it is practised as a therapeutic measure. TANNER'S experience taught us that the average man may live for weeks without food and not suffer ill-health as a result. Advantages, in fact, follow a reasonable fasting in many complaints. It has been truthfully said that more die as a result of over-feeding rather than from starvation.

There will be opposition to the physician's order to refrain from food of any kind for days by many, but he should insist upon his instructions being literally carried out when he sees fit to issue such an order.

In the so-called biliousness, with coated tongue, torpid liver, gastric indigestion, etc., fasting will do more than medication to bring relief. When there is gastric fermentation with putrefactive changes, the undigested food furnishes material upon which the micro-organisms feed and

multiply. Unless the stomach contents are gotten rid of through lavage, an emetic and cathartics with fasting, there will result an auto-intoxication. After thoroughly emptying the stomach sufficient time should elapse before food is again taken, to allow it to readjust itself to its proper functions. In intestinal disturbances, such as diarrhoea or constipation, the conditions will invariably improve with fasting. In febrile affections it is wise to refrain from food for several days, giving only an abundance of pure water. In all disorders of metabolism food should be withheld. In fact, food should not be allowed when it will not afford nutrition through proper digestion and assimilation.

The appetite will not serve as a safe guide for the administering of food, as there is often not only an abnormal craving for food, but substances that are useless for nourishment demanded. This is witnessed frequently in dysentery, typhoid, dyspepsia, diabetes, hysteria, melancholia, and in pregnancy. The appetite, therefore, does not always afford an evidence of a need for food. Water can be freely used while fasting. It flushes out the alimentary tract, promotes secretion and excretion, equalizes the blood current, and, in fevers, favorably influences the temperatures; besides it largely allays the craving for food.

In selected cases fasting will prove a very helpful therapeutic measure.
—*The Dietetic and Hygienic Gazette.*

The Uses of Hydrogen Peroxide.

BY

DAN M'KENZIE, M. D. (Glasg.) C. M.

THERE seems to be a kind of natural law directing the manner in which new remedies rise into favour. Some come rapidly to the front; some, again, are brought to notice stamped with the imprimatur of honest workers, and backed by experiments which fully explain the action of the new agent. As examples of the second class we may mention nitrite of amyl, thyroid-gland substance, and adrenalin—remedies which have fully realised the high hopes raised by their behaviour in the laboratory. This class comes quickly into favour, is everywhere received and trusted, and remains popular for almost any length of time. A third group there is, the members of which slip in, as it were, by a back-door, and have to wait patiently, sometimes for many years, before they finally obtain recognition.

Hydrogen peroxide is a member of the third group. Introduced as long ago as the pre-antiseptic days, it fell into desuetude, or, to speak more correctly, was scarcely used at all, on account of its unreliability, instability, and acid impurities. The experience of recent years and the

possibility of obtaining the solution free from impurities have, however, altered our opinion of the remedy, and we now look upon it as an agent invaluable for its purifying and hæmostatic qualities, not yet recognised by the general body of the profession as fully as its merits warrant.

HÆMOSTATIC PROPERTIES.

As a hæmostatic, hydrogen peroxide is most useful in controlling that form of hæmorrhage known as "parenchymatous," when every little arteriole and capillary is copiously pouring out blood. Under these circumstances the ten-volume solution of the liquid applied by means of swabs will dry up the bleeding surface with almost magical rapidity. This action reminds one of the hæmostatic action of hot water, but the manner in which the two substances act is different. Hot water stimulates the muscular tissues of the vessels to contract, while hydrogen peroxide induces hæmostasis by causing a rapid formation of fibrin in the mouths of the severed vascular channels. Hydrogen peroxide is, of course, easier to handle than hot water, and it is free from the risk of burning the parts.

While H_2O_2 may be used as a hæmostatic under almost any circumstances, it is specially relied upon in bone operations like the radical mastoid, when free oozing from the osseous wound prevents the all-important continual inspection of the depths of the cavity. It is also of the greatest service in the surgery of the nose, where operations are liable to be accompanied and followed by an amount of hæmorrhage not only inconvenient, but even at times dangerous. In epistaxis also, which, it will be remembered, is usually due to the rupture of a small vessel low down in the anterior part of the nasal septum, hydrogen peroxide applied to the bleeding area on a tampon will suffice in most cases to bring the hæmorrhage to a standstill. Of other varieties of hæmorrhage which have been successfully combated by this remedy we may mention uterine hæmorrhage, in which it has been found that H_2O_2 solution injected into the interior of the uterus, or applied on strips of gauze, is sufficient to lead to a cessation of the bleeding. On the other hand, too much should not be expected of it. For example, it is highly improbable that internal hæmorrhage, from the stomach or bowels for instance, can be controlled by peroxide of hydrogen, because the solution must undergo decomposition long before it reaches a bleeding-spot so remote.

ANTISEPTIC AND DEODORANT PROPERTIES.

However useful hydrogen peroxide has proved to be as a hæmostatic, there can be no doubt that its prime service consists of its antiseptic, deodorant, and purifying qualities. It is true that the bacteriologists

have denied to it the power of destroying bacterial life, but it is also true that we are acquainted with a number of substances which enjoy the confidence of the surgeon, in spite of the fact that bacteriologists refuse to credit them with being bactericides. Iodoform is the most familiar of these agents, despised and rejected in the laboratory, but welcomed at the bedside. Hydrogen peroxide is another, for, when applied to foul discharging wounds and ulcers, it does undoubtedly act as a cleanser and as an antiseptic in the widest sense. And, moreover, it is no exaggeration to say that in this respect hydrogen peroxide is the equal, if not the superior, of many powerful chemical antiseptics.

In the presence of blood, pus, or necrotic tissues, hydrogen peroxide undergoes decomposition, parting with an atom of its oxygen—a chemical change which gives rise to a free and rapid effervescence of minute bubbles, rising from the depths of a wound to the surface, bear with them minute particles of dead tissue, pus, and debris generally, just as tiny bubbles of gas in effervescing soda-water seize on minute pieces of cork and hurry them to the surface. Hydrogen peroxide owes its cleansing and antiseptic qualities solely to this mechanical action, say the bacteriologists, for they are unwilling to grant to the nascent oxygen any considerable property of killing bacteria. Whatever the explanation may be, does not really matter very much. About the practical result there is no dispute.

ILLUSTRATION OF USES.

In the cleansing of all sorts of septic wounds, ulcers, and cavities, hydrogen peroxide is unrivalled. In suppuration of the middle ear, for instance, it may be used with wonderful benefit as "drops," the ten-volume solution being diluted with an equal quantity of water. After the characteristic foaming is over, the ear is carefully dried out and suitable astringent or chemically antiseptic solutions instilled. It should not be used indiscriminately, for we must remember that where any suspicion exists of the possibility of mastoid infection, where, for example, the drainage of the middle ear through the tympanic membrane is imperfect, and where, therefore, we fear that the effervescing liquid will not find a free exit into the meatus, then hydrogen peroxide is better avoided.

In all varieties of "septic" and membranous sore-throat the solution is of great value. The writer has seen a septic exudate on the tonsil vanish entirely a few hours after using it. The best way to apply the remedy in these cases is to spray the solution accurately on to the inflamed surface. Gargling is a very imperfect and unreliable method, and mopping with swabs is unpleasant and often painful. In like manner septic conditions about the mouth, catarrhal and ulcerative stomatitis, mercurial

stomatitis, and even, it is said, leukoplakia, are benefited by using it as a mouth-wash.

Ophthalmic surgeons are employing hydrogen peroxide in infective diseases of the conjunctiva and lachrymal apparatus. Membranous conjunctivitis, like membranous sore-throat, yields quickly to its influence. On the other hand, it is less useful than protargol in streptococcal and gonococcal conjunctivitis. A note of warning regarding its employment in ophthalmic work is sounded by SEITZ, who reports that, after applying the dilute solution for a prolonged period to the healthy eye of a rabbit, corneal opacity was produced.

Skin ulcers of all kinds are refreshed, cleansed, and stimulated to cicatrise by hydrogen peroxide, and it has been reported that indolent ulcers of a tubercular nature have been healed when treated with H_2O_2 followed by iodoform. Foul cancerous ulcers and gangrenous sores are rendered clean and odourless when regularly bathed with the solution. On the intact skin hydrogen peroxide has no action whatever, nor is froth or foam produced. But it should be remembered that H_2O_2 is a powerful bleaching agent, and we should not therefore permit it to remain for any length of time in contact with the hair, especially if black or dark brown in colour.

PEROXIDE IN DIAGNOSIS.

As a diagnostic agent, revealing the presence of pus, hydrogen peroxide has proved of much value. If the antrum of HIGHMORE, *e. g.*, is suspected to contain pus, the puncture of its nasal wall by means of a fine trochar the cannula, followed by the injection of some of the solution, will soon settle the point, for if pus is present the foaming liquid at once comes pouring out of the nose bearing on its surface characteristic yellow streaks. In suspected corneal ulcer, also, hydrogen peroxide is said to be as valuable as fluoresceine, effervescence taking place at the spot where the surface is abraded.

Finally, let us note that the remedy, whether the official solution be employed in full strength or diluted, is inexpensive, easy to handle, and free from caustic or poisonous properties. In the pure form it sometimes gives rise to some smarting of the edges of a wound. When diluting the liquid, care should be exercised to use only distilled water. As one of the drawbacks of hydrogen peroxide is its liability to undergo decomposition, a freshly made solution should always be used.—*The Hospital*.

Action of Iron Preparations on the Teeth.

DR. MORGENSTERN has made an exhaustive study on the action of iron salts and ferruginous waters on the teeth. He made thin sections of

the teeth of man, the ox and the calf, and immersed these in solutions of the salts, 100 cc. of the solution being used in each case. The period of experimentation extended over two to four months, and the sections were examined twice weekly under the microscope. From his results, as given in the *Therapeutische Monatshefte*, it is apparent that ferratin, ferrum reductum, liquor ferri albuminati, and liquor ferri saccharati have no deleterious effect on the teeth. Ferri citras, Ripoldsauer Stahlquelle and Cudowa-Eugenquelle mineral waters have a faint action on the teeth. A partial decalcification and blackening of the teeth is caused by tincture ferri pomati, the pyrophosphate, lactate and sulphate of iron, and the mineral waters of the Elsterquelle, Pyrmonterquelle and Schwalbacherquelle.

Ferrous iodide and chloride are especially injurious, a ten per cent. solution of which will remove the enamel in a few days. He also finds that the absolute per cent of iron in a mineral water does not determine the injurious effect thereof on the teeth. This action is largely subordinated to the presence of salts of the earths, which seem to promote the corrosive action of the iron. The iron exhibited reappears in the saliva, but, as it is now in the form of an albuminate, it has no effect on the teeth. In conclusion he states, as has long been quite generally practised, liquid iron preparations should always be taken through a glass tube by the patient. Iron preparations are best given in pill form, or powdered in gelatin capsules.—*The Dental Era*.

The X-Ray in Applied Therapeutics.*

BY

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[Written for the Medical Brief.]

Three conditions confront us in the use of any agent we wish to use therapeutically. First, it is well to understand the physical properties of the agent, for this usually leads to the second, or the physiological capabilities of the same; while a knowledge of the two will assist us in applying it to pathologic states.

What is the X-ray? Its discovery is now history. To say that it is electricity in some form is simply begging the question. We must know,

* Read before the Medical Society of the Borough of Bronx, January 8, 1908.

then, what electricity is before we can understand the physical properties of the X-ray.

If we come right down to the last and final division of all that surrounds us, the world, the stars—in fact, the entire universe—we are compelled to recognize three, and no more than three entities. These three physical entities are: *Matter, Ether and Energy*.

Each one of these three possesses special properties whereby they essentially differ from each other, yet each one is directly influenced by the presence of the other. Thus, all matter has weight and fills space.

Ether is that elusive substance that seems to exist principally in a negative form, yet it is everywhere, and is absolutely essential. We cannot see, hear, taste, smell, nor feel it; nevertheless, we can, by many experiments, prove its existence. Without the ether there could be no waves or radiations of light and heat from the sun. The ninety-three millions of miles from the Sun to us must be filled with something; nature abhors a vacuum, and there is no such thing as emptiness.

Energy is that power which changes the state of motion of all bodies. Just as there is no emptiness, so there is no such thing as rest. The very particles of a solid piece of steel are in a state of perpetual, unremitting quiver. This motion is vibration; the cause or the power that continues or changes this vibration is energy.

We started out to define electricity; shall we say electricity is matter? No, it does not possess weight, neither does it occupy space. Yet electricity cannot manifest itself without matter, for something must be electrified. Is electricity ether? No, because electricity may be manifested to our senses, and is tangible; but electricity requires the ether, for it is only the ether that occupies all intermolecular space that conducts electricity. Ether, therefore, is not electricity, but essential to it.

Is electricity energy? No, since energy is possessed by all bodies, and only under certain conditions is electricity manifested. We may have energy without electricity, but not electricity without energy.

We have thus reduced the entire universe to three terms: *Matter, Ether and Energy*. It was shown that not one could, by itself, and without the other, exist. In reality these three entities are so closely interwoven with each other that they really become one, and this one, whatever that may be, is necessary for the existence and manifestation of a certain condition we call electricity.

Electricity is essentially vibration; the rate and magnitude of this vibration is fixed by certain physical laws of which we are more or less conversant.

Electricity, ordinarily, travels at the rate of two hundred and ninety thousand miles per second, with a certain range of wave length. When a current of a sufficiently high tension or pressure traverses a glass sphere from which all the air that can be removed, has been removed, the waves, or oscillations, become shorter, but increase in number enormously. The waves finally become so small that ordinary substances offer little or no resistance to the vibrations, and they are, therefore, capable of passing through various substances and becoming manifest again after such passage. This phase of an electric current, on account of its similarity to a ray of light, has been called X-ray : X-ray, because it acted like a ray of light, and yet would not obey the ordinary light rays. The X-ray cannot be deflected, nor refracted, nor bent from its course by a magnet, but through many substances passes as light does through glass. The X-ray is invisible, the same as electricity; no human eye has ever seen the X-ray, but the effects of the X-ray may be studied in detail. So much, then, for the purely physical properties of the X-ray.

It has been said that all things are in a constant state of motion, or, rather, vibration. It naturally follows that the smaller the various particles of any substance, the greater should be its rate of vibration. The ether, no doubt, possesses the smallest of all particles, and the vibration of the ether particles is electricity.

If the string of a violin be caused to vibrate in a room where there is a piano, every string in the piano of the same pitch will vibrate in sympathy with the violin string. Not only that, but every string possessing octaves below and above it will also vibrate if the initial vibration is strong enough, and the piano strings in harmony with it. Again, if two or more rates of vibration exist at the same time, the stronger will destroy the weaker. In nature there is no such thing as discord; all and everything is harmony.

Each and every manifestation of life depends upon certain rates of vibration. The cells composing the organs of Cortie in our ears respond or vibrate in sympathy with all rates between eighteen per second up to forty thousand per second. The cells of Cortie cannot respond to vibrations, though they may be in harmony after the rate of forty thousand. The rods and cones of our eyes are capable of responding to vibrations, when they reach four hundred thousand billion to seven hundred thousand per second. We recognize these rates as light and the various colors.

There is much food for speculation in the thought that there exist sound-waves that no ear can hear, and color waves of light that no eye can see. The sum and substance of all this is that every single cell

in our body is in a continuous state of vibration; more than that, it is harmonious vibration. The cell, as we know, is a complex arrangement of a cell membrane, protoplasm, nucleus and nucleolus. All these must be in harmony, and remain in harmony with each other and their neighbouring cells. The very moment that discord or inharmony is caused to exist, that moment disease begins, and death of the part follows.

The X-ray evidently possesses a rate of vibration far in excess of seven hundred thousand billions per second, because our optic mechanism is unable to respond to it.

When the cells of our body are brought under the influence of X-ray vibrations, the cells either vibrate in sympathy, and so become actuated to a greater activity; hence we produce stimulation in the part, or the vibrations of component parts of a cell may be arrested, their-vibration may cease, and so we cause inhibition. Should this arrested motion last too long discord would ensue, with the unavoidable alternative of death of the part.

We have, then, three distinct effects from the X-ray, *viz.* stimulation, inhibition and destruction. These effects are not sharply defined; a large dose of stimulation by over-stimulation causes inhibition; a large dose of inhibitory effect would cause disintegration and death. It is not, then, the X-ray, but rather the way in which the various parts of the body respond to the X-ray that furnishes us with these varying results. It, therefore, depends entirely upon the state of the tissue at the time of exposure.

This property of the X-ray to cause disintegration of tissue is due to the ionizing effect.

So much, then, for the physiological properties of the X-ray.

X-ray therapeutics, like all therapeutic measures, are only useful when applied to a pathological process.

The human body is subject to only three conditions, or states, *viz.*, normal, sub-normal or above normal. The normal body requires no therapeutics; the sub-normal conditions evidently require something of a stimulating nature. The X-ray is hardly indicated, although it does possess a small amount of stimulating properties. But as has been pointed out, the slightest amount of over-stimulation causes inhibition. That brings the X-ray down to practically one condition, and that is where some organ or tissue is above normal. In other words, the destructive action of the X-ray far exceeds all its other qualities. It apparently also possesses a predilection for glandular tissue, and the more highly organized the gland the greater is the destructive effect.

Only a few years after its discovery it was noticed that nearly all X-ray workers had become sterile. There was a complete absence of spermatozoa. This effect has since then been amply verified upon dogs, cats, guinea pigs, hens' eggs, frogs' eggs, seeds of various kinds.

I have under treatment two females, who for pathological reasons, should not again become pregnant. These patients have been under treatment three and four years, respectively. Every three months they receive X-ray exposures for fifteen minutes every other day for one week. So far the results are eminently satisfactory.

Pathological glandular overactivity is found in many skin lesions, such as epithelioma, lupus vulgaris, sycosis, favus, acne simplex, acne nodosum, eczema, hypertrichosis, hyperidrosis, etc. All these conditions are the result of some irritant in the system causing over-production which becomes pathologic. The X-ray is indicated in varying doses in each one of these conditions. While it must not be looked upon as a specific to the exclusion of other measures, such as eliminants and suitable diet, nevertheless, as far as the local effect is concerned, there is no agent that will so quickly and surely, and so perfectly remove an epithelioma as the X-ray. The cosmetic effect in nearly all these skin diseases far exceeds all other known methods.

It has been my good fortune, during the last few years, to treat, besides these skin lesions, a large number of constitutional diseases. One of the best results from the X-ray is seen in cases of Hutchinson's disease, tubercular glands, tubercular joints, splenic leucæmia, etc.

Just a word about the much-dreaded so-called X-ray burn: We are well on the way of eliminating this troublesome part of the X-ray. One month ago I had the privilege of presenting to the dermatological section at the academy a technique that has, for the past three years, succeeded in over five thousand applications of preventing even as much as an undesirable reaction.

A specially constructed tube, "The Cornell Tube," designed by myself, is contrary to all expectations, brought into direct contact with the lesion. No rays escape anywhere excepting directly upon the site where needed. The operator, as well as the patient, are at one and the same time protected.

The successful use of the X-ray, therefore, depends upon the fact that the X-ray, primarily, is a destructive agent. When a destructive agent is applied to the tissues, there ensues a reaction; it is this reaction to the ray that is turned to therapeutic usefulness.

The application of the actual cautery, painting a joint with iodine, the production of a blister, touching a part with lunar caustic; all these, and many more, are destructive agents; yet, if properly applied in suitable cases, cause a certain reaction by the tissue; the virtue lies in the reaction, not the agent.—*The Medical Brief.*

Subcutaneous Injections of Air to Relieve Pain.

GUBB, of Algiers and Aix-les-Bains, in the *British Medical Journal* of November 9th, 1907, describes the above method, originated by Dr. CARDIER, of relieving pain in obstinate cases of neuralgia. The results probably are due to mechanical action producing stretching of the finer nerve filaments. A hollow needle, attached to which is a rubber bulb, beyond which again is a glass tube filled with gauze, the whole apparatus being sterile, is all that is necessary. After plunging the needle through the skin over the seat of pain, and making sure a vein has not been injured, insufflation is gently undertaken. The skin, at first blanched, later becomes hyperemic; the air travels widely, accompanied by subcutaneous crepitation; cutaneous sensibility is at once diminished; next, the puncture having been sealed with collodion, the air must be alternately dispersed and brought together again by careful massage. Several days elapse before the air is absorbed.

Over regions such as the genital 200-300 c. cm. may be injected, whereas over the thorax 10-30 c. cm. will suffice. In sciatica inject over the lumbar region, outer side of thigh and supero-external part of the leg, followed by systematic massage.

GUBB has also treated cases of neuritis with success, providing absolute rest is enforced.—*The Canadian Practitioner and Review.*

DERMATOLOGY.

Absorption of Drugs through the Skin.

It has always been a very much discussed point as to how much therapeutic effect can be attained by the administration of drugs to patients through the skin. The teaching of physiologists was, for a long time, that little or nothing could be absorbed into the system through unbroken skin, or at any rate, through a normal skin, unless so much rubbing had been employed that the surface layers were to all intents and purposes denuded.

Clinical teaching, on the other hand, has always allowed and considerable degree of drug-absorption can occur through ducts and epidermis: a very good example of the practical application of lymphatics is seen in the mercurial treatment of syphilis either by inod in surgical

fumigation. There is much clinical evidence to show that other oily substances can be absorbed in a similar way. The great improvement that can so often be noted in marasmic children when their bodies are anointed with cod-liver oil daily can scarcely be entirely due to diminution in the heat lost from the surface of their oily bodies. Heat loss can be inhibited in other ways—by clothing and by fires, and so forth—yet the rate of improvement brought about thus is nothing like so great as is that which results from gently rubbing oil into the skin.

ABSORPTION OF CARBOLIC ACID.

That it does not take any particular friction of the skin surface to cause substances upon its outside to pass through into the vessels beneath is well shown by an unusual case reported from the Corner's Court in January last. Mr. C. Luxmoore Drew held an inquest at Chelsea concerning the death of a man aged fifty-six, a butler at a house in Chelsea Embankment, death having occurred under strange circumstances. The report was that the man was found sitting in a bath partly filled with water into which carbolic acid had been poured. On a chair near at hand there was a bottle containing about half a pint of carbolic acid. The sufferer was not dead when he was found in the bath, but he was *in extremis*, and although artificial respiration was tried for some while, he died in about half an hour.

A post-mortem examination was made, and the viscera were reported to be perfectly sound. The doctor stated that, in his opinion, death was due to syncope from carbolic-acid poisoning. As there was no sign of any of the acid having been swallowed, the conclusion came to was that a lethal quantity had been absorbed through the skin. It appeared that the man was in the habit of taking these carbolic-acid baths, imagining that he had a skin disease.

This is the case in brief, as reported in the papers. It may be urged that there is no proof that there had been actual absorption of carbolic acid, but that fatal syncope had occurred when the patient happened to be in a carbolic-acid bath. Against this supposition there was the evidence that the man had no visceral disease, and there appeared to be no reason, except the carbolic acid, why he should have died. If not actual absorption, yet the case affords presumptive evidence in favour of there having been carbolic-acid absorption through the skin.

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SALICYLATE ABSORPTION.

The following is a more conclusive case in proof of the readiness with which some drugs may be absorbed into the system through the skin. The patient was a very intelligent man, who had the misfortune to suffer much from chronic rheumatism. Various remedies for the latter were tried, and amongst them salicylate of soda. This would relieve the joint pains, but never failed to make the man almost stone deaf. If ten grains of the salicylate were taken upon a single day, the deafness came on with certainty, and it lasted for nearly a fortnight sometimes, even when no further dose of salicylate was taken. This was such a nuisance to him that he was obliged to forego the use of the drug, and he put up with the joint pains rather than take the remedy with its untoward consequence.

One day, being particularly troubled with pains in his knee joint, he decided that, though he would take nothing in the form of salicylate by the mouth, he would apply a salicylate remedy to the joint locally; and he used an ordinary small quantity of betul oil, or oil of sweet birch, which contains salts of methyl-salicylic acid. The effect upon his hearing was identical with what would have been the results had salicylate been taken by the mouth. Within a few hours of the application to the knee the hearing began to go; next day the patient was stone-deaf, and remained so for nearly a fortnight.

It was clear, therefore, that quantities of salicylate had been absorbed through the skin round the knee, out of the betul oil.

DOUBLE CONDUCTION IN GLAND TUBULES.

It is needless to multiply examples of such trans-epidermal drug absorption, but it is interesting to inquire into the process by which the absorption takes place.

Some work done upon surgical cases by, we believe, Mr. BOND of Leicester, throws a great deal of light upon the matter. This surgeon took the trouble, whenever he had to operate upon anything connected with a tubular structure in the body, to place some readily identifiable substance, such as indigo or carmine, at the wrong end of the duct or tube just before the operation, and then noted whether any of it had travelled up the tube the wrong way. For example, if an operation were to be done upon the cæcum he would place the carmine or other substance in the rectum; if a breast were to be amputated, he would apply some of the colouring matter to the nipple; and so on. He was thus able to show that in every case the colouring matter ascended the tube in which the main normal movement of the contents was downwards. The colouring matter ascended the colon from the rectum; ascended the ureters and reached the kidneys from the bladder; ascended the mammary ducts and entered into the substance of the gland, and even reached the lymphatics in the axilla; and so on. In other words, it was demonstrated in surgical

cases in man that the ducts of glands, and tubes like the bowel, had both an out-going and an inpassing current, and that substances were constantly passing along them either way.

The significance of this in connection with ascending nephritis or surgical kidney might well be dilated upon; but at the present moment it is our purpose to discuss the bearing of the facts upon absorption through the skin. If there is both an ascending and a descending flow in big glandular ducts, it is reasonable to suppose that the same holds good for the ducts of little glands. The skin is full of these; there are both the sweat glands and the sebaceous glands; and even if only quite a small quantity of an application ascended into each duct, the total amount that would thereby reach a comparatively close contact with the blood-vessels of the corium might be considerable. It is doubtless in this way that drug absorption through the skin takes place.—*The Hospital*.

A Demonstration of Selected Skin Cases.

BY

G. NORMAN MEACHEN, M.D., B.S., M. R. C. P.,

Physician to the Skin Department of the Hospital, and Lecturer in Dermatology at the North-East London Post-Graduate College.

[Given at the Prince of Wales's General Hospital, Tottenham.]

LADIES AND GENTLEMEN,—This boy, aged 11, is one of two brothers who are affected with patchy baldness of several months' duration. The areas are irregular in outline, and their bases are moderately smooth, though they have not quite the billiard-ball like polish usually associated with alopecia areata. I have carefully examined the scalp for evidences of ringworm, because this particular variety of alopecia is simulated by tinea decalvans, or "bald" ringworm. There are no spores present, but on close inspection of the patches you will notice several short hairs which are not broken off short and bent irregularly, as are ringworm hairs, but are thickened at their extremities, and under the microscope you can see that the end is frayed out and brushlike. Quite by accident I discovered that one of the hairs was distinctly nodose, or moniliform, and this affection of the hair-shaft is very rare. Of the two rival theories as to the causation of alopecia areata, the parasitic and the neuro-trophic, the latter would appear to be more supported by facts. Inoculation experiments in man have not been successful, in spite of the fact that the micro-bacillus of seborrhoea is frequently found in association with alopecia, whereas there are numerous instances on record, some of which I have noted personally, where there have been evidences of peripheral nerve irritation affecting

some branch of the fifth cranial nerve, such as severe dental caries, errors of refraction, or neuralgia. When one or other of these sources of irritation has been removed, it would seem as though an impetus has been given thereby to the growth of hair. At the same time, one cannot dispense with local applications, and the one I am using for this boy is oil of cinnamon, in the strength of two drachms to the ounce of olive oil. Oil of cassia a cheaper substitute, is not nearly so efficacious.

SOME MORE SCALP CASES.

Here is a little girl, aged 4, who has a generalised thinning of the hair after an acute illness, in this case whooping-cough. Her hair is very thin, and what there is does not seem very well nourished. In this variety of alopecia coming on after a severe or debilitating malady I think chloral hydrate is a valuable stimulant locally applied. She is having an ointment containing 10 grains of the drug and 2 drachms of the B. P. red oxide of mercury ointment, in 1 ounce of lanoline. It is often necessary to give a tonic as well, such as the syrup of the phosphate of iron.

This other child, aged 4, had a condition of fine scaliness of almost the entire scalp when I saw her in my clinic last week. Such an affection is very commonly diagnosed as ringworm, but no spores have been found in this case. Moreover, there are a few small crusts here and there, and she has some blepharitis in addition. It is simply a case of scalp eczema. The converse mistake, that of calling a ringworm eczema, is, of course, frequently made, for the characteristic stumps are not often seen when there is much general scaliness. In cases of doubt it is advisable to take a surface-scraping of the scalp and examine it in potash under the microscope. I have prescribed a weak ointment of ammoniated mercury.

SATIN-WOOD DERMATITIS.

This man, aged 43, is a cabinet-maker, and he has been engaged in the work for upwards of twelve years. It is only during the last three months that he has been working in satin-wood, and he has suffered for the last month with a severe eczematous dermatitis affecting the hands, neck, and face. The satin-wood is used for inlaid work, being sandwiched between other softer kinds of wood, and part of this man's work has been to plane it down evenly, and it is the fine dust which rises during this process which is prone to irritate those with sensitive skins. A few cases have been recorded from time to time of this particular "trade dermatitis," and the only thing which seems to have any permanently good effect is complete removal of the source of irritation. He has brought us a few

samples of the wood, and also of other woods inlaid with pewter. Working with rubber gloves may be permitted, but a short abstinence from work is imperative in acute cases. He has found relief from bathing with a lotion of calamine and cyllin (1 per cent.), equal parts, after which an ointment containing 15 grains of ichthyol in Lassar's paste has been kept constantly applied to the affected parts.

URTICARIA PAPULOSA WITH HÆMOPHILIA.

I am showing you this little girl, aged 2, for two reasons. In the first place, she is a typical example of a very common skin eruption in children which the older dermatologists described as "Lichen urticatus." The primary lesion is a small papular wheal, found upon the lumbar and sacral regions, but in bad cases nearly the whole body and limbs may be affected. Irritation is great, so that the papule quickly becomes surrounded by a minute blood-crust, the result of scratching. When the lesions are undergoing involution they get flattened, and then assume a distinctly lichenoid aspect. Some of these you can now see upon the back, and in the absence of any primary lesion one can understand, perhaps that the condition might pass for a lichen planus, but this affection is very rare in infants. Secondly, we are informed by the mother that the child is a "bleeder," and that she lost one other child with hæmophilia. The present child has only been in England eight weeks, having been an outpatient at an American hospital. She has suffered from severe epistaxis, but the interesting point is that profuse hæmorrhage is said to have occurred as a result of scratching the skin lesions. I cannot recall any instance in which fatal hæmorrhage has taken place in a hæmophilic solely as the result of scratching, but the possibility causes one to take a serious view of the situation. I have given her a mixture containing 5 grains of calcium chloride, the taste of which is disguised by a little extract of liquorice and syrup of orange. Locally a dilute cyllin lotion or bath is very beneficial, after which an ointment containing a little ichthyol or beta-naphthol may be applied to the spots.

TERTIARY SYPHILITIC ULCERATION.

This man, a gardener, aged 39, has a peculiar ulceration of the scrotum and adjacent part of the perinæum. When I first saw him three weeks ago the integument over the lower part of the penile urethra, the scrotum and perinæum was deeply ulcerated, but there were no lesions elsewhere, except a shallow ulcer on the under surface of the tongue. The primary infection occurred in Cape Town nine years ago, and he was treated for only three months. He attended here eighteen months ago with a few pustular lesions upon the legs. I have given him iodipin (10

per cent.) in drachm doses three times a day in an emulsion, and I really think that this remedy has produced a more favourable impression in the short time that he has had it than would have been the case with potassium iodide. At any rate, the drug is a most useful one in causing rapid absorption of tertiary specific lesions, and it has the marked advantage of producing no symptoms of iodism.

EXTENSIVE TINEA VERSICOLOR.

It is sometimes said that the value of colour in the diagnosis of a cutaneous eruption has been greatly over-estimated, and with that statement I am inclined to agree. Nevertheless, the peculiar dirty, yellowish-brown tint of this man's rash is, in itself, a sufficiently diagnostic feature of tinea or pityriasis versicolor. You will notice that the rash is very extensive, and that upon the back the individual circinate lesions have run together to form one large sheet. We found the microsporon furfur in abundance upon taking a surface-scraping. There has been practically no irritation at all in this case, and it is quite possible for a patient to have the disease extensively and to be unaware of the fact. The history of medicine is always interesting, and I will read you a few words from Dr. Willan's text-book, published in 1824—i. e., twenty-two years prior to the discovery of the fungus by EICHSTEDT. "The causes of this pityriasis," he writes, "are not well understood. It occurs most frequently in those who have resided in hot climates, especially in its troublesome form. The most extensive eruption that I have seen occurred in a Custom-house officer, after drinking spirits freely during a day of fasting in the boat on the Thames. Fruit, mushrooms, sudden alternations of heat and cold, violent exercise with flannel next to the skin, have been mentioned as probable causes of this eruption." This allusion to flannel reminds me that the so-called "flannel-rash" may be due to this disease, but more often it is a seborrhœic dermatitis. Other authors of the period confused tinea versicolor with chloasma, or pigmentation of the skin. The fungus is readily found on examination, and is, of course, proof positive of the nature of the eruption. The disease is easily cured by frequently bathing the affected parts with warm solutions of thiosulphate of soda (ordinary photographers' "hypo") in the strength of a drachm or two to the ounce of water.

SOME CASES OF PSORIASIS.

I have several cases of psoriasis here this afternoon which illustrate certain points in connection with that disorder.

This man, aged 42, says that the rash first appeared upon and in the neighbourhood of the scar of an old compound fracture of the leg, and

now you may see the scaly patches actually upon the scar. It is not so very uncommon for psoriasis to appear upon scar-tissue first of all and then to spread to other parts.

This woman, aged 35, has had the disease for three years, generally worse in the autumn, and she also has a rheumatic history. Such a case is nearly always benefited by salicin or drugs of that group, and she has been taking acetosalicylic acid in 10 grain doses three times a day for some time.

Here is a case in a younger patient, and her scalp is markedly affected. The lesions resemble splashes of mortar, and scalp-psoriasis is strikingly different from seborrhoea of this part, the scaliness in which is far more diffuse, less silvery, and more greasy. This girl is not well, suffering much from dyspepsia and constipation. That psoriasis cannot now be regarded as the "disease of the healthy," as was originally propounded by HEBRA, is beginning to be more and more recognised, and my friend Dr. ABRAHAM has shown that in a considerable percentage of psoriatics there is some systemic disorder concomitant with the skin eruption. It behoves us, then, to examine the other systems of the body very carefully in this disease, as in any widespread cutaneous affection. The local treatment of all these patients has been bathing with cyllin (creolin) and the inunction of ointments containing the same drug with a little salicylic acid.

DYSIDROSIS PALMARUM ET PLANTARUM.

This boy, aged 11, has suffered for the last six weeks with a troublesome form of sweet-eruption of the palms and soles. The condition began about the toes; the skin in between speedily became sodden and eczematous, rendering walking almost impossible, and some bromidrosis ultimately developed. Then the hands became affected. He is now very much better, the feet being practically well. I gave him baths of cyllin for the feet, and after gently drying the toes, the compound boracic powder was thickly dusted on. At his next visit he was given an ointment containing a little iodoform for application to the toes, while the hands were directed to be kept covered with a mild Lassar's paste.—*The Hospital.*

narium, der eine kompliziert durch Erblindung auf der Seite der Operation und durch meningitische Symptome.) *Zeitschrift für Augenheilkunde*, Band XVIII, August, 1907.

After references to ONODI'S anatomical investigations, Laas reports a couple of cases in which a minor operation upon the nose, of every-day occurrence, was followed by serious ocular complications. The essential facts are given below:—

CASE NO. 1.—A bricklayer, aged 33 years, was affected with enlarged tonsils, hypertrophic rhinitis, and a spine and deviation of the septum nasi on the left side. Potassium iodide was administered without obvious result, although there were reasons for suspecting syphilis. The tonsils were removed, and a few days later, the hyperplastic turbinates on both sides were treated surgically. Nine days after the last operation, under novocain and suprarenin, the nasal spine was chiselled away in two pieces, which when reconstructed, measured 4cm. by 2.5cm. The first sign of ocular disturbance was noted a quarter of an hour after operation, when the patient complained of a glittering (*flimmer*) before his right eye, and, on testing the sight roughly, it was found that the upper part of the up-lifted finger could not be seen with that eye. The right pupil, bigger than the left, reacted sluggishly to light and to accommodation. Three days later, there was no free pus in the nose, and transillumination showed no differences between the sinuses on the two sides. The patient was first seen by LAAS, the operation having been performed by another surgeon, the day after removal of the nasal spine. The right eye could only distinguish hand movements. The upper half of the field of the right eye was blind, and was divided from the lower (seeing) half by an almost horizontal line. Ophthalmoscopic examination negative. As regards the left eye, sight, field, and fundus were normal. Twelve days after operation, R.V. fingers at 5 mètres, and the optic papilla was noted as being rather pale. A week after that, R.V. = 5/15, and optic disc unmistakably pale. The sight of the right eye improved to 5/10 and No. 3 Jaeger, although the disc became white, as in total atrophy. The hemianopic pupillary reaction was present.

LAAS explains the sequence of events in the foregoing case on the assumption that the chiselling of the spur on the left side of the nasal septum produced a fracture of the walls of the right optic canal, thereby causing a partial tear of the optic nerve. In this patient there not probably anatomical peculiarities which predisposed to such an accident. The author again refers to ONODI'S anatomical researches as to how this contralateral effect could be brought about. fluid, and

CASE NO. 2.—A workman, aged 26 years, consulted MOSCOW, 1907, KUTTNER on account of an exostosis on the left side of the

Under cocaine, the little growth was removed by means of a motor-saw, the entire process lasting for about one minute only and being free from any complication. As soon as the patient opened his eyes, which he had kept shut during the operation, he exclaimed that his left eye had become blind. He became feverish and irritable, and so was admitted to hospital on 18th December, 1894, presumably the day after operation. On reception, he was semi-conscious, with a temperature of 38.9°C . He was unable to walk unaided. His neck and spine were stiff; he resented any movement, however slight; and he passed urine and faeces beneath him. The left pupil did not respond to direct light, although it reacted promptly on convergence. The right pupil responded to direct light when thrown into the eye from the left or front and also to convergence. The indirect light-reflex, however, was absent. Movements of eyes intact. No fundus changes. The left eye was completely amaurotic. The right eye apparently was hemianopic as regards the temporal side. Lumbar puncture, undertaken five days after admission, showed that the cerebro-spinal fluid was scarcely even cloudy. By the beginning of January, 1895 the general condition had improved. The field of vision of the right eye then showed a large temporal defect, and the field, as a whole, resembled in outline a shamrock-leaf. A recurrence of the meningeal symptoms next occurred, accompanied by violent pains in the head, tenderness of the scalp, increased temperature, incontinence of the urine and faeces, and somnolence. These disquieting symptoms disappeared in the course of several days, and when the eyes were examined by Dr. LEHMANN on 17th January, the condition was as follows: the retinal vessels were normal, but the temporal half of the left optic disc was pallid. The right optic disc showed no ophthalmoscopic changes. The left pupil was devoid of reaction to direct light, although it responded normally to indirect light as well as to convergence. The nervous symptoms gradually disappeared and the patient was discharged from hospital 51 days after admission. The right vision (myopia corrected) was then 5/12, but the left eye was blind.

Blindness Following Orbital Abscess.

Bartels, Martin.—Concerning the anatomical basis of blindness following orbital abscess. * *Archiv. f. Augenheilkunde*, LVI, No. 3, p. 267 and *Archives of Ophthalmology*, January 1908.

The amount of pathological work done in regard to the causation of blindness from orbital abscess is not large. This fact lends additional interest to BARTELS'S case, in which the entire optic nerve was microscopically examined in serial sections. The facts follow:—

CLINICAL ACCOUNT.—On the second day after a girl, 12 years of age, had been operated on for left-sided sinus-thrombosis following disease of the middle ear, swelling of the lids and bilateral exophthalmos made their appearance. The patient was first seen by BARTELS on the following day, when the lids were swollen, the eyeballs protruded and immobile, and the conjunctiva was oedematous. The fundus was normal, save for pallor of the optic disc. Seven days after the operation it was noticed that the right optic disc was prominent, but vision was normal. Visual aphasia was present. Pulse slow; temperature 39.9°C . A diagnosis was made of abscess of the temporal lobe, with abscess of orbit, following thrombosis of the cavernous sinus. A couple of days later, quantities of foul-smelling pus were evacuated through an incision made in each upper eyelid, but despite drainage, the exophthalmos increased. Three days after this operation: visual aphasia; vision normal; choked disc in each eye. A further operation was undertaken two days later. The mastoid wound was then opened, and a large abscess in the temporal lobe of the brain was evacuated, and, in addition to this, both lower eyelids were incised, with the result that much pus escaped. Next day, amaurosis of the right eye, but with the left eye coins could be recognised. Three days after that, the right retina showed a whitish discolouration, especially in the macular region, and linear hæmorrhages were present in the last-named, and also on the optic disc. The child died 36 days after the first operation.

PATHOLOGICAL ACCOUNT.—The autopsy, made by Dr. SCHRIDDE, disclosed the existence of an abscess of the left parietal and temporal lobes of the brain. The right and left cavernous sinuses, as well as the circular sinus and the anterior third of the left superficial petrosal sinus were plugged. The transverse sinuses contained thick clots, but were not thrombosed. Bilateral abscess of the orbits, in the pus from which were found staphylococci, streptococci, and saprophytes. Double broncho-pneumonia. The contents of both orbits were fixed in Muller's fluid, and

* A brief abstract of Bartel's communication was published in *THE OPHTHALMOSCOPE*, 1907, p. 256.

stained with carmine. The specimens were embedded in celloidin, and serial sections made. On the right side, the following conditions were found: the orbit contained several large abscesses, lying within the muscular cone, but not pressing on the optic nerve. The pus lay principally in the fatty tissue, which included numerous thrombotic vessels. The orbital fascia was nowhere perforated, although infiltrated at one point. The larger arteries, especially the ophthalmic artery, were normal. On the other hand, the larger veins, especially the ophthalmic vein, were obliterated by organized thrombi. Muscles normal.

The central artery, within the lamina cribrosa, was normal, but behind that structure its endothelium was thickened, and farther back its lumen was obliterated by new-formed tissue, which contained many small vessels. The central vein, within the papilla and lamina cribrosa, was normal. At a distance of 3.5 mm. behind the latter it was entirely occluded by a mass of tissue made up of round and epithelial cells. The vessel was blocked for a distance of 1.6 mm. The orbital section of the optic nerve showed an area of necrosis, which surrounded the above-mentioned thrombotic portions of the central artery and vein. In the necrotic area, which stained badly, nerve-fibres were replaced by granular masses.

REMARKS.—Commenting upon the above case, BARTELS believes that the vascular obstruction was due not to emboli but to thrombi. The vein was first involved, and the condition, he thinks, was due to thrombosis or embolism of the vasa vasorum, possibly of bacterial origin. Accompanying this change in the wall, there was congestion of the vein, resulting from closure of some of the orbital veins. A venous thrombus was in this way formed. As a consequence of this, the arterial wall became compressed, and a thrombotic condition within the vessel followed. It is possible, however, that inflammation passed directly from the wall of the vein to the arterial wall, thus, resulting in a thrombotic-arteritis. The necrosis of the optic nerve, which involved the entire cross-section of the nerve in the region where both central vessels were occluded, was probably due to deficient nutrition from obstruction of both afferent and efferent vessels. As the necrosis showed no inflammatory changes, a bacterial infection may be excluded. The narrowing of the vein took place gradually, and before occlusion was complete, collateral branches were formed. This would explain the absence of larger hæmorrhages in the fundus, such as usually occur in thrombosis of the central vein. The intense retinal œdema seen at a later stage was probably due to the complete occlusion of the central artery and to thrombosis of some of the individual retinal vessels. How can we explain the blindness,

which occurred on the fourteenth or fifteenth day of the illness? The artery was not entirely occluded at this period, inasmuch as the anæmia was first noticed later. It is, however, likely that the nerve-fibres in the retro-bulbar portion of the nerve were impaired as regards their nutrition, in consequence of thrombo-vasculitis of the central vessels, so that they become functionally inactive. The necrosis followed shortly after. The loss of vision, at the last, was due to occlusion of both central vessels, as well as to necrosis of the optic nerve and partial thrombosis of the vessels of the macula. The orbital abscess was due, in BARTELS'S opinion, to extension of a septic thrombosis of the sinus. The œdema of the lids and the exophthalmos were due to two factors: first, obstruction to venous outflow; and, secondly, the infectivity of the purulent inflammation. It is remarkable that despite thrombosis of the cavernous sinus, which probably existed in the first few days, there was no choked disc. Choked disc made its appearance, however, with the occurrence of abscess in the temporal lobe.

BARTELS concludes a suggestive communication with the following deductions—1. Blindness with orbital abscess may be caused by retrobulbar necrosis of the optic nerve, due to thrombosis of the pial vessels, and thrombosis of the central vessels, in parts. 2. Through formation of a collateral circulation, both central vessels may regain their patency before and behind the thrombotic occlusion. Consequently, in spite of the thrombosis of the central vessels, the vessels on the papilla may appear to be normally filled. 3. The outer ocular muscles and nerves may remain normal, in spite of prolonged orbital abscess.—SYDNEY STEPHENSON.—*The Ophthalmoscope.*

THE ANTISEPTIC.

JUNE, 1908.

Milk Supply in Madras.

IT is becoming increasingly important that Municipalities and local bodies responsible for the health and well-being of large aggregates of population should, consistently with the principles of individual and personal liberty, exercise some sort of control over the supply and distribution of food stuffs. In this Presidency, within the past few years, a great deal has been done in regard to sanitation, drainage and water supply in Municipal areas. Not less pressing is the necessity for the regulation of the sale for human consumption of the various articles of food. Many of the Municipalities have by-laws for the control of the distribution of certain kinds of food-stuffs. But the supervision has seldom been efficient, and the public in general realise the importance of effective control only during seasons of epidemic. With the growth of civic patriotism and responsibilities, and with the broadening of the basis of local self-government, it is to make it really popular, the functions of self-governing bodies are multiplying themselves, and the enlightened sense of civic populations accordingly be stimulated to activity in the directions in which popular control for the good of all is essential. But what we now venture to call attention to is not the necessity of supervision over articles of food in general, but the question of milk supply in populous centres. It will be admitted by all who have some sort of experience of town-life that considerable difficulties exist to obtain pure ghee and pure milk. In the city of Bombay an Act has been passed to prevent the adulteration of ghee. But, so far as we are aware, no Municipal Corporation or local body in India has taken steps to secure a regular supply of good and wholesome milk. Milk is an important article of diet, which may be regarded as a necessary of life. If proper care is not taken, it may become a cause of disease of all kinds. In proportion to its importance as an article of food for all classes of people of all ages and conditions of life is perhaps the danger that lurks in impure milk as the prolific parent of diseases innumerable. It is, therefore, essential that in crowded cities and towns the Municipalities

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concerned should have an effective control over the milk supply. We are aware that, in cities like Madras, Municipalities make an attempt to examine the sanitary conditions amidst which the milch-cows are kept. But we are equally certain that scarcely in any Indian city is the supervision efficient. The structures in which cows are kept, their ventilation and surroundings, the kind of food given, and the general state of health of the cattle are not looked into with the necessary care and skill. In many a house in Madras you will see cows tied up in pials and verandahs promiscuously, without any regard to the convenience either of the animals or even of the human inmates. Nobody requires to be told that in certain parts of our city, in improvised and execrably ventilated sheds, with an utter but inexcusable contempt for the rules of sanitation, cows are tied up in rows and fed on material often rotten or unwholesome. Not infrequently these sheds are an eye-sore even to those who pass by the streets. We are told that the Corporation authorities exercise some kind of supervision. But has any effective step been taken to ensure healthy sanitary conditions? Has any veterinary officer ever examined any of the cows, the milk of which is freely distributed among the inhabitants of the city of Madras? Has the milk at any time been subjected to any of the many scientific tests to ensure its good quality? With regard to the last, as with regard to the examination of food-stuffs in general, we shall be told that the Madras Corporation has no laboratory of its own to analyse them. We hope that a laboratory will soon be established and equipped. But with regard to the examination of the sanitary surroundings and the food given to the cows and to the examination of them by veterinary officers, we should like to know what steps have been taken either in Madras or in the other towns in the Presidency. The matter is not one to be trifled with, or dismissed as one of secondary importance. It is a question involving life and health.

But we are convinced that if the milk supply should be satisfactory from all points of view, capitalists should form companies for the purpose. We are told that the Madras Corporation has made a small beginning in the matter of supplying milk. But we are not sure whether it can undertake the supply of milk on a large scale. It can only lead the way, set an example; and we are glad that the Madras Corporation has done it. But we should like men with money, enterprise and public spirit to come forward. In this connection we have to bring to the notice of the public of this Presidency what is being done in a European town. The Danish town of Copenhagen furnishes us with an object lesson in pure milk supply. The Copenhagen Milk Supply Company is only one of many such undertakings. This Company maintains a regular staff,

and carries on its operations on a purely scientific basis. The Company supplies milk to public institutions and private individuals on terms agreed upon. It was started with a capital of £550. But the demand has been such that the capital now stands at £8,250. The actual assets of the Company are returned at £27,600. Here is what a contemporary says about it :—

"At first the source of supply was limited to the neighbourhood of the city, but, owing to the development of the railway facilities and the larger number of farms thus made available, the company was able to go further afield, and select farms kept under more sanitary conditions. Milk is now consigned to Copenhagen from considerable distances, one of the largest sources of supply being over 90 miles distant, and comprising some 500 cows. At present there are forty farms, representing 500 cows, supplying milk to the company.

In addition to this company, there are several others with a somewhat similar object, as well as some 200 farmers and cow-keepers in and around the city who sell direct to the public. Some of the companies have for their speciality the supply of milk for children, and, while this company also caters for this trade, its main object is the supply of fresh milk which, being pure and wholesome, requires neither pasteurisation nor sterilisation. Briefly put, the lines upon which the company works is tersely expressed in their motto, "Clean milk from healthy cows," and in endeavouring to realise this high ideal they insist on all milk sold being in conformity with the following requirements:

(1) The cows must be periodically examined by veterinary surgeons, and only those found healthy retained in the milking herd.

(2) The conditions of contract, which have for their object the minimising of the risk of extraneous contamination, must be strictly observed; and

(3) The milk must at all times be kept at a low temperature, so that the growth of fermentative and putrefactive organisms which have gained access is inhibited."

We have here an object lesson. We commend it to enterprising gentlemen all over India. We would invite the attention of Municipalities and Corporations to the necessity for action on the lines indicated.

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Original Articles.

* DIGITALIS, SQUILL, STROPHANTHUS, BROOM, CACTUS, AND OTHER HEART TONICS.

BY

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1. DIGITALIS.

Chemistry.



ALTHOUGH foxglove (*Digitalis purpurea* Linn.) was introduced into medicine by W. WITHERING so long ago as 1785, yet, despite the fact that much work has been done in trying to clear up the chemistry and pharmacology of the drug, we are still far from having an exact knowledge of this common plant. It perhaps contains three chief active glucosides which have been named—*digitalin*, *digitalein* and *digitonin*. Besides these it contains a bitter principle called *digitoxin* and which differs from a glucoside only in the fact of its not yielding glucose when it is decomposed by boiling with alcohol and a mineral acid. None of the active principles can be obtained in a perfectly pure state. Digitalis contains in addition to these, another glucoside, or more correctly, a resinous body called *digitin* which has the action of a simple bitter.

The Preparations of Digitalis and their Relative Glucosidal Value.

A *tincture* prepared with glycerine or 60% ethylic alcohol contains a portion of all the glucosides. It will, of course, contain only a small quantity of *digitonin*, but this is not important, seeing that *digitonin* has only an action allied to saponin. That is to say, it is a cardiac depressant. The

* Specially contributed to *The Antiseptic*.

tincture will also contain a small proportion of *digitoxin*, the bitter principle already spoken of. A *watery infusion* contains chiefly digitalein and digitonin and only a small inappreciable quantity of digitalin and digitoxin. The tincture is therefore the better preparation although it is so often decried. It is said not to keep, but it does keep. I obtained a tincture in the usual way of trade and found at the end of 14 months that it was physiologically active in ordinary doses. The preparation had been frequently used in the interval. The glucosides of digitalis are not so easily decomposed as is generally supposed. Boiling in presence of dilute mineral acids alone hardly breaks them up.

Active Principle or Crude Drug?

Occasionally it may be better to employ digitalin or digitalein than the tincture or dried leaf, where the tincture or leaf has failed. However, on the whole, the practitioner who pins his faith to the tincture or dried leaf is a wise man. The active principles so called are far from being definite bodies, and every maker's digitalin or digitoxin differs from that of his neighbour. Moreover, there is another good reason for employing the tincture or dried leaf, namely, in the fact that we get a happy blending of the active bodies of the drug. Digitoxin, digitalein and digitalin produce increased contraction force of the heart muscle, while in addition, the digitalin raises the blood pressure. The digitonin, by its paralyzing action on both sensory and motor nerves, counteracts the over-action of the other active principles. Another advantage is the presence of the simple vegetable bitter digitin which acts beneficially as a mild stimulant to the glands of the alimentary tract.

Another argument, and a very powerful one, against the employment of the active principles of digitalis is to be found in the fact that they are all highly insoluble when they have once been isolated. In the plant they are mixed up with sugars and extractives which help to dissolve these active principles. This is the reason why alkaloids and glycosides, which in the isolated and pure state are almost totally insoluble in water, are yet found in considerable amount in watery solutions of the plant.

Pharmacology.

Everyone is agreed as to the efficacy of foxglove, but the views as to its particular manner of action are diverse. At the present time I do not intend to discuss the poisonous action of the drug, so that we have nothing to do with any action it may have on the vagus trunk or the medulla. Does digitalis act on both arterioles and heart muscle? And is the rise in blood pressure due to its action on both heart and vessels

or only on one? I now hold to the view that the drug acts on both heart and vessels; but the action on the vessels is so comparatively small that it may be undone by combining the drug with any of the vaso-dilators without any appreciable loss of digitalis action. In fact I go further and say it is a good plan to prescribe sweet spirit of nitre with digitalis, because the action of the sweet nitre is rapid, and the arterioles are soon in a state of medium dilation, and the heart has thus not to waste energy in overcoming a peripheral contraction and is therefore saved labour. Our forefathers prescribed sweet nitre with digitalis without knowing why; but although they could give no reason for the faith that was in them, their practice was sound.

Does foxglove act on the kidneys directly or only indirectly through the circulatory apparatus? While in the main increased flow of urine depends on more blood being brought to the kidneys, there is an appreciable local action on the kidney tissue resulting in true diuresis. Of this I shall speak later on. What causes the slowing of the pulse rate? It is due to an inhibitory action on the ends of the vagus nerve, that is to say, it is peripheral and not central in origin. Under the influence of digitalis the heart beats not only more forcibly, but also more uniformly, with the result that the chambers are thoroughly or more thoroughly emptied. If then formerly the heart had to beat 75 times a minute to accomplish a certain task, it can now perform the same in 60 beats. Further there is a change in the rhythm of the beats as evidenced in the pulse at the wrist. A pulse which intermitted say every 10th beat may, after digitalis has been given, only intermit every 40th beat. Put these together and think of the immense gain to the heart and indeed to every tissue. What is lost in numbers is more than made up in contraction force.

The nitrites have an action opposed to digitalis. They dilate the vessels. They also differ in the quantity of their action, for they act mainly on the vessels, and little on the heart. In 1894 I showed from clinical examples that within certain limits sodium nitrite was an antidote to digitalis poisoning, and likewise that digitalis was an antidote to overdoses of nitrites. In 1897 PROF. C. R. MARSHALL of Dundee showed from laboratory experiments that if the blood pressure was lowered by nitrites, it could be raised by digitalin and the reverse. Likewise, if the blood vessels were dilated by perfusion of sodium nitrite they could be contracted by perfusion of digitalin, and the process could be reversed. Further he showed if digitalin and nitrite were carefully mixed in due proportion no action at all was obtained. That is to say, the drugs were mutually antagonistic. You may say this completely upsets my

contention for the employment of a mixture of digitalis and sweet spirit of nitre. But we cannot reason from the blood vessels of a dead frog to the living organism man. The difference is as the difference of a single muscle to the whole muscular system. In the laboratory we employ reagents to one small portion of the organism, and we obtain a corresponding reaction. Nature applies then to the living organism in her own way and in her own time, and when we exhibit two remedies in one dosage we generally find what may be called a "difference in time" reaction. This explains any apparent discrepancy in my line of reasoning. In attaining its maximum action digitalis is 96 times slower than sweet spirit of nitre and 24 times slower than sodium nitrite. This line of study has been neglected in the past, but we cannot in the future afford to ignore it.

Absorption and Excretion of Digitalis.

When digitalis is given by the mouth, probably its first effect is that of an ordinary bitter. The gastric glands are irritated, the colouring matter is precipitated by the acid contents, and unless the stomach contents are soon passed into the duodenum it is likely that vomiting will take place, for the stomach is very intolerant of digitalis, as witness the severe vomiting after large doses. No doubt the drug may, under certain circumstances, remain in the stomach for a considerable time, and some little absorption may take place from the mucous membrane of this organ. I know this view is not generally held, but I have so often seen partially broken up tincture of digitalis returned by the stomach, that I now hold to the view just stated. The following experiment supports my assertion:—

If a portion of tincture be digested with pepsine and if the products be dialysed at intervals it is found that in 10 hours a perceptible glucoside reaction is obtained. On the other hand if a portion of tincture be treated with pancreatine and dialysed it is found that in $3\frac{1}{2}$ hours a perceptible glucosidal reaction is got. The drug is probably, after being absorbed by the small intestine, stored up in the tissues, forming compounds with them like that formed by a metal and a proteid, and its chance of remaining a long or a short time so combined depends on the balance between the ferment of the tissue and the digitalis compound. The discoverable action of digitalis is slow. It acts, however, very early, but so slight as to be nearly imperceptible. This is because the ferment contained in the tissues is able to deal with the digitalis compound as fast as it is stored up. However, if large doses be given, as, for example, a teaspoonful every two hours, a maximum digitalis action can be rapidly obtained. With ordinary doses it takes 9 to 24 hours before absorption and storage

exceed elimination. At the end of this time the drug begins to act powerfully, for the tissues have become saturated and our object now is to keep the balance even, and this can be done by lessening the dose. Such is the usual experience with ordinary doses and without special care being taken to ensure that the drug is presented to the tissues under circumstances most favourable to absorption. It is possible to saturate the tissues more rapidly and to obtain a typical digitalis action much more quickly than is generally believed. The rapidity with which digitalis brings about diuresis and slows the pulse will depend upon the state of the arterial blood pressure when the drug is given. In health it is difficult to effect these at all with even large doses, because the tissues are so resilient that every attempt at change in their normal rate of working is resisted. If then the drug is given in a case in which the arteries are well filled and the arterial pressure in moderately good tone, then it will not give these brilliant results which are often experienced. It is certain in an instance of this kind some other remedy is indicated. On the other hand, given a case with ill-filled arteries, low arterial pressure and accompanied either by breathlessness or swelled ankles or both, then digitalis acts quickly and effectively. The lower the arterial pressure then, the more quickly does digitalis act, as will be more particularly seen when I come to speak of the therapeutics of the remedy.

By What Channels is the Drug Excreted.

Under ordinary conditions excretion is chiefly by the kidneys and it acts chiefly as an indirect diuretic by bringing more blood to these organs and so increases the quantity of urine passed. Digitalis, however, also increases the output of urea.

Example of Excretion under Ordinary Doses.

Large volumes of the urine of a patient taking tincture of digitalis in small doses were washed with chloroform and alcohol. The resulting extract was purified and on being examined gave the tests for digitalis glucosides, and when a normal saline solution of this extract was passed through the blood-vessels of a frog it produced marked contraction as $10\frac{1}{2}$ is to 26, and this contraction could be undone by subsequent perfusion of dilute solution of sodium nitrite in normal saline.

Elimination in Excessive Doses.

So far I have dealt with the condition in which the equilibrium between ingestion and excretion is nearly maintained, but if ingestion much exceeds excretion, and the tissues have become saturated with digitalis, what takes place? The poison passes into the blood stream, but nature makes every effort to get rid of it, and in order the more readily

to effect this, the glucosides or decomposed glucosides are thrown into the stomach and cause retching and vomiting. This vomiting or retching may continue for 18 hours after all digitalis has been left off, and a feeling of nausea may continue for another 18 hours. That is to say, poisonous symptoms may last for 36 hours when the tissues have been supersaturated with the drug continued for some time and in fairly large doses. I have examined the vomit from such a case, care having been taken to wait for at least 6 hours after the last dose, so as to ensure against any of the actual digitalis being in the stomach. The stomach contents were treated with absolute alcohol and chloroform, and the resulting extract repeatedly washed with alcohol and purified after a long process which need not here be detailed. I was able to get a reaction answering to the glucosides of digitalis or to digitoxin or some allied bodies. I had not enough extract to prove or disprove this pharmacologically.

Therapeutics.

If I were asked to state in a sentence what was the real action of digitalis I should say—It gathers up the ineffective beats of the heart and divides them into a smaller number of useful beats. Keeping this in mind, and also keeping in mind the fact that this effect depends upon an action, not on nerve trunks but on nerve endings, namely, on the vagus endings in the heart muscle and on the muscle fibres in the vessels,—then one is able to discriminate between those conditions in which digitalis is likely to do good and those which it cannot be expected to benefit.

Where Digitalis is of No Service.

I shall briefly describe those affections in which it is almost futile to prescribe the drug. In heart failure due to diphtheria, digitalis is of no service, for the heart condition is either due to an affection of the nerves of the heart, or of the myocardium, or of both.

It need not then be pointed out that the drug cannot affect the nerve trunks in a myocarditis; the heart muscle is in need of rest and not stronger contraction.

Dropsy depending on cirrhosis of the liver alone or due simply to the cachexia of cancer is not relieved by digitalis. Likewise the dropsy of Bright's disease is not removed by it, unless there is at the same time a heart condition aiding in the production of the dropsy. In smokers' heart the affection is a toxic action of the sympathetic and its ganglia causing quick, irregular and intermittent beats.

Digitalis cannot undo this action. The remedy is to get rid of the toxic body.

Where Digitalis may be of Some Service.

In pneumonia with heart failure it is of doubtful value, for here again the heart trouble is often due to the same causes as are present in diphtheria: now and then where the heart is labouring and where the contractions fall below the line of usefulness, digitalis may increase their contractor force and so remove the burden.

In simple dilatation of either ventricle without affection of the muscle, and where palpitation is a prominent symptom and where the organ is insufficiently supplied with blood, ten minims of the tincture given 3 times a day often relieve the symptoms and place the heart on the way to recover itself.

Occasionally digitalis appears to act well in the chlorosis of young women in the same manner as it does in dilatation of the ventricles, and for the same reason, but it is doubtful if it is much employed in this capacity today. One generally prefers to employ iron.

Condition in which Digitalis is of the Highest Service.

This leads up to the consideration of those heart conditions in which digitalis is the sovereign remedy: in derangement of *any* of the valves and when, but *only* when, the valvular disease is so severe that the heart muscle is unable to do its work as a driving organ. This is shown (1) in an impaired pulmonary circulation with poorly filled arteries resulting in pulmonary catarrh, cough and shortness of breath, and (2) showing a loaded venous system, the signs being fluid in the peritoneal cavity and in the areolar spaces more especially of the lower extremities. It needs to be reiterated, and reiterated, that the employment of digitalis is not warranted in disease of any valve unless there is distinct evidence that the heart muscle is unable to cope with the emergency. Again in simple aortic regurgitation it needs to be ever remembered that digitalis should not, on any account, be prescribed.

If this fact be kept before us—that digitalis strengthens but shortens systole, *but* also lengthens diastole—and this is just the condition present in aortic regurgitation—then we are not likely to be tempted to prescribe this drug. In all affections of the heart there is an almost inherent temptation to fly to digitalis, so that no apology is needed for emphasising this point.

How to get the Best out of Digitalis.

Given, then, a patient whose condition may presumably be benefitted by digitalis, how can we best exhibit the drug?

First, the patient should be sent to bed. If this rule be followed, then one may be prevented from falling into error in estimating the efficacy

of digitalis or indeed of any heart tonic. Some years ago when working on *Cereus (Cactus) grandiflorus* Miller, and, although I was given the run of a hospital, I had the utmost difficulty in finding cases. It was not that we had not plenty of cases of cardiac dropsies, but I found when the patient had been sent to bed, dieted, and made comfortable in a clean hospital with the foot of the bed tilted a couple of inches, the dropsy, in a large majority of instances showed signs of disappearing within 48 hours. Now, had I at once placed the patient on a particular drug I should, most likely, have claimed the credit for this particular preparation. This is interesting, and in an able thesis for the Doctor of Medicine degree presented to the Victoria University DR. JAS. ALXR. MACLAREN in 1900 emphasises the importance there exists for paying more attention to "spontaneous diuresis."

The lesson is—unless the symptoms are urgent—it is best to rely on diet, rest, attention to the bowels, warm (but fresh) air and the tilted bed, reserving digitalis for the time when these by themselves fail. Of course, where the symptoms are urgent digitalis must at once be given, but without neglect of the aforementioned means.

Best Preparations to Employ.

The tincture is a good preparation to employ. It will, undoubtedly, act after the fresh infusion in large doses has distinctly failed, showing that the tincture is the more active of the two. It should be given in not less than 10 minim doses, diluted with glycerine and water or with chloroform water alone, and given every four hours or oftener if urgency necessitates. Liquid preparations of digitalis, when given in large doses for even a few days, are apt to cause vomiting; it matters not how they may be disguised or combined. In these cases it is best to give the drug in pill form. In fact, whenever I wish to ensure rapid diuresis, I always give digitalis in pill form, and it saves disappointment to prescriber and patient.

I prescribe either the old fashioned BAILLIE'S, ABBOT'S or GUY'S pill, namely, 1 gr. digitalis in powder, 1 gr. blue pill and 2 grs. squill, or more often I order a pill of 1 gr. digitalis in powder, 1 gr. dry extract of cascara sagrada and 2 grs. squill. The latter has the advantage that it clears out the bowels moderately quickly, and so the tissues are placed in the most favourable circumstances to the absorption of the digitalis.

How soon Digitalis may act.

The general belief is that digitalis is a slowly acting remedy, and that its effects cannot be perceived till a period of 36 or 48 hours has elapsed. This is a mistake. Digitalis acts much more rapidly than this,

as may be seen from the examples I proceed to give. These examples, in addition, will illustrate the particular class of affection in which digitalis gives the most satisfactory results.

Double Mitral Disease: Digitalis action evident in 8 hours.—A man aged 52 with an old double mitral affection, with pulsation in the jugulars and auricles, and with a radial pulse of 40 of very low tension, developed, in process of time, dropsy of the legs with scanty urine. Rest in bed for a week had failed to remove the dropsy, and at 9 one evening he was given 15 minims of tincture of digitalis of known potency. By 5 next morning diuresis had set in and was kept up by small doses of the drug till the dropsy had cleared away. It was discovered that this man reacted well to digitalis. This is, no doubt, a somewhat unusual experience, but the facts are there, and the drug acted more rapidly than it is generally believed to do.

Mitral Disease due to Acute Rheumatism, Dyspnoea and Dropsy: Digitalis action in less than 24 hours.—A butcher aged 63, who 30 years previously had acute rheumatism, suffers from periodic break-downs in compensation. No distinct murmur is heard, but the sounds in the mitral area are muffled. During the attacks the heart beats, and the pulse becomes more than usually irregular and intermittent; and at these times the pulse is low in tension while the veins are turgid, and the face is florid. There is probably polyerythæmia, due to deficient aeration of the blood, this in turn being due to the weak condition of the heart muscle. The patient well knows the serious nature of his illness and the treatment he himself should put into practice; hence when he feels his breathing becoming unusually difficult and perceives that the swelling of the ankles is extending to the legs, he goes to bed. This often restores the balance, but when it fails he uses his digitalis prescription—this is fifteen minims of the tincture made up to half a fluid ounce with chloroform water and taken every two hours. He tells me that if he begins this prescription at four in the afternoon, he experiences relief before six next morning, and that he has to get up several times in the night to pass large quantities of urine.

Mitral Regurgitation in a man of 72: Reaction in less than 24 hours.—An old army non-commissioned officer who takes occasional bursts of drinking suffers afterwards from swollen feet, bronchitis, breathlessness, small soft pulse, while a systolic mitral murmur is heard. In these attacks he passes very little non-albuminous water. To a casual observer he would appear ill. He has to keep his bed because he is too ill to get up. On the particular occasion I am about to speak of, he had been in bed for

some days so that time was given for spontaneous diuresis, and a good chance was given for improvement to set in provided rest could have effected this. One BAILLIE'S pill was prescribed every two hours and with the happiest consequences, for in less than 24 hours the breathlessness was so much better that he was able to talk without having to stop to take breath every few seconds as he had to do on the first day of my visit. Water was being passed freely, and the swelling in the ankles was less: the pulse was improved in tone, and altogether he was better. Improvement proceeded without interruption.

Double Mitral Valvular Lesion: Digitalis action in 12 hours.—This patient I have known for 14 years, and by all the canons of medicines he should have died at least 13 years ago. She is 73, and suffers from both stenosis and regurgitation of the mitral valve—the result of acute rheumatism contracted many years previously. The particular attack I wish to chronicle was one of many break-downs in the compensation—she had fluid in the right breast, in the abdomen and in the areolar spaces of the lower extremities. Rest in bed for some days without medicament had somewhat relieved the condition, but there was still a great amount of swelling causing breathlessness, cough and the other inconveniences due to backward pressure and forward lack of pressure. The urine was scanty, and the pulse was small and lacking in tone. She was at this stage prescribed ten digitalis, squill and cascara pills, one to be taken every two hours. The first was taken at three in the afternoon and by three next morning, the patient began to pass large quantities of urine, the bowels had been moved, she could breathe with ease, and she had had some refreshing sleep. Such information she imparted to me, and when I saw her 22½ hours after the first pill had been taken she was quite free from breathlessness and could carry on a conversation with ease, whereas on the previous day she would not speak for ten seconds without being done up and stopping to recover her breath. The pills were not now taken so frequently, and she had not taken the last till 46½ hours after the start. At this time there was a tendency to nausea, but no actual vomiting—showing that some of the digitalis was probably being excreted by the stomach. The swelling was completely removed, and the “cure” was completed by rest in bed.

On other occasions this patient has reacted as quickly and effectively to the tincture, but she prefers the pills because they are pleasanter to take, and because at the same time they relieve constipation. Such then is the particular kind of cases in which digitalis may be expected to give good results: given a suitable case no drug acts more happily. It may be urged that in the two cases last quoted the presence of the squill and mercury in

one and of the squill and cascara in the other, have somewhat changed from the results from that of a simple digitalis action. There is an element of truth in this objection, but this may be met by saying that the mercury and the cascara are respectively purgatives, and that squill is only an adjunct to digitalis as I have shown elsewhere. Besides the second patient whose case is quoted had on a similar occasion reacted to the tincture.

Combination of Digitalis with other Drugs.

When there is constipation, it is often advisable to combine the laxative with the digitalis. This can be advantageously done in the form of blue pill as in BAILLIE'S pill. Here and there one finds a patient who is especially susceptible to mercury, and ptyalism is the result. Another formula may be employed, namely, the cascara combination, which produces moderate purgation and without the objection of the ptyalism. Both likewise contain squill, and the presence of this drug aids the digitalis, but this is referred to in another place.

In cases of great restlessness, mental distress and sleeplessness, it is often wise to add three to five minims of tincture of opium to each dose of tincture of digitalis. If a pill formula is employed, either ¼ or ½ grain of opium (0.016 or 0.02 gramme) may be given with each pill. These quantities of opium are sufficient to soothe, and yet not too large to produce profound or dangerous slumber. It is almost unnecessary to say that in heart affections a very important line of treatment is to try and allay the anxiety of the patient and no drug calms the nervous system so much as opium judiciously administered. Opium has the further advantage of rendering the gastric mucous membrane analgesic and so making it more tolerant of the liquid preparations of digitalis.

Broom both in the shape of its preparations and its active principles is often prescribed in conjunction with digitalis, but this is dealt with in another part of this paper.

2. SQUILL.

This naturally leads on to the consideration of Squill.

Chemistry.

Like digitalis it contains a series of glucosides and bitter principles, none of which as yet have been isolated in a pure state. When once isolated from their combination in the plant they become highly insoluble, unstable and unsuitable for employment in medicine. Their names are *Scillain*, *Scillitoxin* and *Scillipierin*.

Pharmacology.

This means of the crude drug, for it is not possible to speak with any degree of accuracy of the pharmacology of the various active principles.

The action of squill is the action of digitalis with some minor differences, except that squill is much less powerful than digitalis. (1) When perfused through the excised heart it is found to increase systole and to prolong diastole more than either digitalis or strophanthus. (2) Relatively speaking it slows the heart more than either digitalis or strophanthus. (3) It constricts the coronary arteries more than these aforementioned drugs. (4) Squill has a distinct irritant action in the mucous membrane of the gastro-intestinal tract, of the respiratory tract, and on the urinary tract.

Therapeutics.

HAYNES of Cambridge (*Bio-Chemical Journal*, Vol. 1, No. 2) has recently gone over much of the familiar ground in regard to digitalis, squill and strophanthus, and his pharmacological experiments lead him to remark: "I should like to enter a plea for the more extended use of squill in place of digitalis in cases of heart failure: it acts more quickly, more effectively, and does not cause any more if as much gastro-intestinal derangement." Extended clinical experience, I am afraid, will not support the accuracy of this observation. As a cardiac tonic in urgent cases it must be given in rather large doses and these do produce much real gastro-intestinal disturbance, and this is apt to undo the good it may have effected as a heart tonic. Squill, in practice is found to act best as, an adjunct: (1) to cough medicines in cases of bronchitis and other like pulmonary affections, and it aids the other contained expectorants both by a direct action on the bronchial mucous membrane and by a reflex expectorant action on the gastro-intestinal tract, and also no doubt by its cardiac action it relieves the distended right side of the heart; (2) squill aids digitalis, and that often in a very happy manner, for, it appears to accomplish something which digitalis now and then fails to effect alone. By its action on the gastro-intestinal tract it often produces a good deal of watery motion, and this is useful. In the same manner its irritant action on the urinary tract is also useful, for it induces direct diuresis. Thus squill may act both as a direct and as an indirect diuretic.

It may be administered in tincture along with tincture of digitalis, or better still in the pill form combination which I have spoken of in a former part of this paper.

3. STROPHANTHUS.

Botany.

The Strophanthus or Kombe arrow poison plant of medicine is derived from the seeds of *S. Kombe* Oliver, and it must be carefully distinguished from other species of strophanthus notably from *S. hispidus*.

The cut seeds of the kombe species give with strong H_2SO_4 or with dilute H_2SO_4 which is gradually brought to the requisite degree of concentration by heating—a green coloration as opposed to a red coloration with *S. hispidus* and other species.

Chemistry.

It contains only one active principle, *strophanthin*, a glucoside which becomes oxidised to a green *strophanthidin* on the application of strong H_2SO_4 and its presence in the seed can be demonstrated as mentioned above. It is a highly toxic body soluble in water, and suitable for hypodermic injection, thus differing from the glucosides of digitalis and squill. The hypodermic dose ranges from 1/300 to 1/100 of a grain (0.0002 to 0.0006 gramme.)

Pharmacology.

In the laboratory strophanthus is found to act very like digitalis and squill with certain differences. It acts more powerfully on the heart and not at all, or almost not at all, or more correctly in a trifling degree—compared with digitalis—on the arterioles. It acts much more quickly than digitalis or squill. It is not cumulative after having observed its action on the heart of the pitted frog after injection into the dorsal lymph sac. I should say that it is a direct muscle poison. Given by the mouth in large doses it produces in man an irritant effect on the kidneys, and has, in consequence, a slight direct diuretic action.

Therapeutics.

The researches of FRASER and his pupils were so elaborate, complete, and apparently so conclusive, that it is strange that strophanthus should have failed to displace digitalis or failed at least to have found a place alongside it. Yet it is so. It has neither displaced digitalis nor has it found among pure clinicians a place alongside the old fashioned fox-glove. Having watched its effects at the bedside in an experience of sixteen years I have only been able to come to the conclusion that where the heart's action is irregular, rapid, and accompanied by breathlessness and perhaps dropsy, all depending on an old valvular lesion—it gives comfort to the patient and relieves the breathlessness. I believe it produces this good result by acting on the heart muscle directly. I always give it in the form of tincture and in doses of 15 to 20 or even 30 minims, with 20 minims glycerine and with water to make up one fluid drachm. This quantity I give every 2 to 5 hours and for as long a period as may be necessary. If tincture of strophanthus be prescribed in dilute watery solution there is a risk of the resinous matters being thrown down and

carrying with them the contained strophanthin. This risk is obviated if the prescription contain glycerine and the dilution be not greater than one fluid drachm. These doses produce at most a mild diuresis. If a great diuresis follows, it must be dependent on some other agent. The patient has a frequent desire to pass water as if the urinary tract was being irritated by some substance or substances contained in the urine. This, I believe, is the cause of the diuresis. I have never observed the indirect diuresis which digitalis occasions, or to put it in another way: strophanthus does not, in my opinion, cause diuresis, as digitalis causes diuresis, by bringing more blood to the kidneys. I wish to make my meaning clear, and, at the risk of being charged with repetition, I state (1) that strophanthus causes a trifling diuresis by its irritant action on the urinary tract; and (2) that this diuretic action is so small as to be of almost no practical effect, especially when one has such a reliable drug as digitalis at hand.

The following record of a case will illustrate the differences between strophanthus and digitalis:—

Mitral Disease, Pulmonary Catarrh and Dropsy of Extremities: Relief from Digitalis after Failure of Strophanthus.—A man of 69 who was under my care for three years before his death for periodical attacks of breathlessness and dropsy of the lower limbs following the break down in compensation in a mitral lesion—was over and over again relieved by digitalis after opportunities had been given for spontaneous diuresis to take place and after strophanthus had likewise failed to relieve the breathlessness and to remove the dropsy. This patient was a man of intelligence and education, and when he found that the breathlessness increased beyond the trifling usual state and when the puffiness of the ankles showed signs of creeping up the legs he went to bed and at the same time he took 20 to 30 minims of tincture of strophanthus every 2 to 4 hours. He believed the strophanthus relieved the breathlessness. Now and then these methods of treatment succeeded, but oftener than not they failed, although the strophanthus was pressed till there was gastro-intestinal irritation and irritation of the urinary tract as well. After strophanthus had failed digitalis was given in pill form (for he was very intolerant of liquid preparations of digitalis) and always with success, so that there could be no doubt as to the superiority of digitalis over strophanthus.

It may be thought that the doses aforementioned are somewhat large, more especially in view of recent publications as to the relative toxicity of strophanthus, squill and digitalis. It is said that the pharmacopœial dose of tincture of strophanthus is too high, but it should be remembered that this statement is made after calculation of its action when injected

hypodermically into animals. Now strophanthus resembles curare in the fact that it is relatively much more toxic when administered under the skin than when given by the mouth; hence when one reads that the dosage of tincture of strophanthus should be much smaller than the British Pharmacopœia defines, one should look upon it as meaning when the preparation is injected under the skin.

The following recorded instances of large doses of the tincture being taken without evident detrimental effect are interesting as supporting my assertions:—

A man took by mistake 50 measured minims of the tincture three times a day till he had consumed two fluid ounces and then he sent his bottle to be refilled when the pharmacist discovered the error. (*Pharm. Journal*, April 17th, 1897, p. 345.)

A woman was prescribed tincture of strophanthus to be taken in minim doses, but she thought the dose was one tea-spoonful, and this dose she took every three hours and in 24 hours she had taken one fluid ounce without ill effect. (*Pharm. Journal*, April 10th, 1897, p. 325). The preparation here referred to was the tincture of the 1885 British Pharmacopœia whose dosage was 2 to 10 minims. It was double the strength of the tincture now in use.

Comparison of the Toxic Action of Strophanthus, Squill and Digitalis on the Frog's Heart.—Four male frogs (*Rana temporaria*) of equal weight are pitted and set aside for 24 hours till they have recovered from the shock incident upon the operation.

No. 1 has injected into the dorsal lymph sac a known quantity of tincture of strophanthus in normal saline.

No. 2 is similarly injected with an equally toxic dose of tincture of digitalis in saline.

No. 3 is treated in a like manner with an equally toxic dose of tincture of squill in saline.

No. 4 is set aside untreated or injected with a quantity of normal saline equal in volume to the toxic fluids with which the other three frogs have been treated. It serves as a control.

At the end of a certain known time the frogs are examined and the results as follows are discovered:—Strophanthus of known potency never fails to stop the heart, and that in a comparatively short time. The ventricle is always in extreme systole, and the auricles are in systole likewise, but less extreme than the ventricle. The ventricle relaxes not at all (when watched for some hours) or at least not for a long time. Thus

strophanthus, judging from the result of this simple experiment, is to all intents and purpose a muscle poison.

Squill may be relied upon to kill the heart, but it takes much longer time than strophanthus. The auricles and ventricles are always found still in diastole well marked in character. Thus it would appear to act further from the periphery than strophanthus. It does not act on muscle directly.

Digitalis does not so certainly stop the heart as either strophanthus or squill, and potent specimens may fail to stop the heart for some hours after injection. Frogs react very differently to the plant. Some are susceptible; others seem highly insusceptible. When it does kill the ventricle is in medium systole, while the auricles may be in feeble systole. Thus digitalis seems to have an action midway between strophanthus and squill.

4. BROOM.

Cytisus scoparius contains a neutral principle named *scoparin* and an alkaloid called *sparteine*. The plant possesses some of the virtues of digitalis, and is employed in cardiac dropsies in decoction form. It acts on the secretory structures of the kidney. This special action is perhaps due to the contained scoparin. It also acts on the heart muscle and thus indirectly plays the part of a diuretic like digitalis. This phase of its action depends on the presence of the alkaloid sparteine. Broom, however, is best employed as an aid to digitalis and a combination of the two form a favourite and useful prescription. Ten minim doses of tincture of digitalis may be given along with two table-spoonfuls of freshly prepared decoction of broom, and repeated every three or four hours while necessary.

Sparteine sulphate is often prescribed in doses of $\frac{1}{4}$ to one grain (0.016 to 0.065 gramme). It may be given by the mouth or under the skin. This alkaloid has an analgesic action on the ends of the sensory nerves and at the site of injection, and for a considerable area around this point the tissues become in ten minutes anæsthetic and remain so for some considerable time. This phase of its action may account for the peculiar effect sparteine often has in calming an irritable heart and in restoring its rhythm. It may really act by an analgesic action on the accelerator fibres of the cardiac plexus. It is deserving of extended trial in palpitation of an evidently functional nature. Scoparin is not employed in practical medicine.

5. CACTUS.

Preparations of *Cactus grandiflorus* Linn. (*Cereus grandiflorus* Miller) or night blooming cereus have been recommended in heart conditions,

more especially in functional affections. The plant contains absolutely no toxic principle and its preparations have not the slightest effect in any serious heart trouble. The best proof of its inutility is to be found in the fact that some years ago it was shown that men had obtained successes attributed to cactus with preparations of a spurious plant, *Opuntia decumana*, which had been thrown on the market by unscrupulous traders.

6. CONVALLARIA.

(Lily of the Valley). It is only necessary to just mention this plant by name. Although preparations of the plant (including its glucosides) have been highly recommended as a heart tonic, they have never found an abiding place in our therapeutics.

Historical Note on Digitalis.—In various parts of the British Isles a decoction of the native plant *Digitalis purpurea* Linn., either alone or as a constituent of a folks' medicine, has been employed from time immemorial in the treatment of "dropsy," but it is only within comparatively recent times that the medicinal virtues of the plant were seriously considered by the orthodox therapist. BOERHAAVE, the great Leyden physician, (1668-1738) simply looked upon it as a poisonous plant. ROBERT ALSTON, who was Professor of Botany in the University of Edinburgh from 1740 to 1761, and whose name is enshrined in the genus *Alstonia*, saw further than his contemporaries, for he said that it ranked among the indigenous vegetables "which, though now disregarded, are medicines of great virtue and scarcely inferior to any that the Indies afford." It was never, however, seriously considered till 1775 when WILLIAM WITHERING, Physician to the General Hospital, Birmingham, began to use a decoction of the leaves on the treatment of dropsies due to cardiac and other diseases. Its success was so marked that his friends soon heard of it, and one of them, STOKES by name, communicated in February 1779 to the Medical Society of Edinburgh, an account of WITHERING'S experiences with the new drug, and later, HOPE tried it in the Edinburgh Infirmary. It was likewise employed by BROUGHTON and HAMILTON of Edinburgh and the CHARLES DARWIN of that day mentions that both he and his father used it with success in hydrothorax. In 1783 the plant was recognised by the Edinburgh Pharmacopœia. Many well known names began to vouch to the utility of digitalis, and among them FOWLER of Stafford (later of York) whose name yet lives in Fowler's Arsenical Solution.

In 1785 WITHERING published his book (*London*, G. G. J. and J. Robinson) embodying his work on digitalis under the title "An Account of the Foxglove and Some of its Medicinal Uses, &c." Herein he cites

numerous instances in which the plant acted after squill (then largely employed in cardiac dropsies) had failed. At first he used a decoction, later an infusion, and after this he began to use the leaves in dried powder and made into pills. Today most men pass through a similar experience, except that now we have in addition the highly active and handy tincture which answers well in so many instances. When digitalis was disposed to purge, WITHERING combined it with opium, and when "the bowels are too tardy, jalap may be given at the same time without interfering with its diuretic effects." Here again WITHERING'S judgment is confirmed by his successors.

The following extracts from his summing up will show that after so many years we have not advanced so very far ahead of his knowledge in the real fundamental principles of digitalis therapeutics.

"It seldom succeeds in men of great natural strength, of tense fibre, of warm skin, of florid complexion, or in those with a tight and cordy pulse."—This is almost the experience of today, namely, where the arterial tension is high, digitalis does not succeed well.

"On the contrary if the pulse be feeble or intermitting, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, or the anasarcaous limbs readily pitting under the pressure of the finger, we may expect the diuretic effects to follow in a kindly manner."—In other words if the arterial pressure be low, digitalis will give good results."

Lastly WITHERING'S inferences may be said to be the universal inferences of every experienced clinician:—

- I. That the digitalis will not universally act as a diuretic.
- II. That it does so more generally than any other medicine.
- III. That it will often produce this effect after every other probable method has been fruitlessly tried.
- IV. That if this fails there is but little chance of any other medicine succeeding."

* MEDICAL DIAGNOSIS.

BY

SURGEON-MAJOR R. E. WRAFTER, B. M. S. (*Retired*).

The diagnosis of diseases in general, for such the distinction of disease is technically called, is partly a science, and partly an art;—a science, because it comprehensively takes account of general facts, and of principles based on those facts; an art, because it demands a cognizance

* Specially contributed to *The Antiseptic*.

of the means, and their application to arrive at the desired result. To consider, then, medical diagnosis in all its bearings, it will be necessary not only to hold up to view the morbid states met with in the examination of the sick, but also to inquire in what manner they may be most readily recognized and explored, and how their differences may be made available in the discrimination of one ailment from another. In a study of this kind, an investigation of symptoms plays unavoidably a prominent part. In reality the detection of disease is the product of close observation of symptoms, and of correct deduction from those signs. The first requirement, therefore, for an accurate diagnosis is to learn to recognize morbid signs. But the art of observation this implies is not easy, and cannot be thoroughly acquired except by practice. No one aspiring to become a skilful observer can trust exclusively to the light reflected from the writings of others; he must carry the candle in his own hand, and himself look into every recess. The knowledge obtained from reading is, however, serviceable in this way; it aids in overcoming one of the main difficulties at first experienced, to know where to look, and what to look for. There are, in almost every affection, some symptoms which can hardly escape the merest beginner; but also some which do not appear on the surface, and which to find taxes the skill of the experienced practitioner. And it is especially in this search after hidden signs that medical information as well as cultivated tact is demanded. Now, to recognize the manifestations of diseases, whether they are or are not readily perceptible, we have to employ our eyes and ears, our sense of touch and of smell. Formerly we could go no further than these senses unassisted would carry us. But Science has lent its aid, and furnished means by the help of which we can detect clearly what before we could not detect at all, or that of which at best we only caught a glimpse. We now possess instruments by which we ascertain with accuracy the size of organs and their action; with clinical thermometers we tell to a fraction of a degree the heat of various parts of the body. Specific-gravity bottles, and other measures devised for the purpose, inform us of the relative gravity of fluids. The microscope gives at a glance insight into matters which the naked eye fails even to perceive, and Chemistry, with its marvellous teachings, is rendering our knowledge of many morbid states amazingly complete. Then the sagacity of modern times has taught us to enlist the sense of hearing, and demonstrated how a disciplined ear may detect the workings of disease in cavities into which the eye cannot penetrate. The effect of all these improved methods of study has been to give an immense impetus to clinical research, and thus to lead to the construction of a solid ground-work of experience in striking contrast with the

looseness and rough vagaries of former times. The advance in diagnosis thus attained forms, indeed, one of the most pleasing portions of medical history. When, by means of the aided or unaided senses, the symptoms of the malady have been discovered, the next step towards a diagnosis is a proper appreciation of their significance and their relation towards one another. Knowledge, and above all, the exercise of the reasoning faculties, are now indispensable. The daily practice of investigating disease; a scrutinizing study of the anatomical lesions; chemistry, with its most searching analysis; the microscope, with the wonders it reveals, are all of little use, unless we have been taught the necessity of placing, in connection with one another, the morbid signs they lay bare, and of considering in individual cases their respective value. Were it otherwise, the science of diagnosis would be simply a matter of memory. It is, however, this very analysis of symptoms and the lengthy process of induction attending it which make medical diagnosis so difficult and so unattractive to the beginner. He sees that by reflecting and reasoning on what are frequently but indirect manifestations, he must find the seat and nature of disorders hidden from his view. Nor is it reasoning on the ascertained facts alone that is required, the adjuncts may be but probabilities; for, in truth, diagnosis deals at times with the logic of probabilities as much as with the logic of patent facts. Now, we are greatly aided in appreciating the import of morbid signs, and in interpreting them correctly, by already existing knowledge. We look to landmarks which our predecessors have erected, and the gradually accumulated science of Semicology, rightly employed, furnishes the clue to the discovery of the disease. Thus the stores which Medicine has laboriously collected during centuries can be used with advantage by all, and exist for the good of all. But an acquaintance with Semicology, which treats of the signs of disease, is far from being the sole guide to diagnosis, nor does it at once help us to a recognition of the malady. There are few symptoms in themselves distinctive; and often a symptom may be due to one of several causes. Semicology informs us of these different causes; but to find out the precise meaning of the abnormal manifestation in an individual case, we have to draw our inference from all the signs encountered: to compare them with one another; to seek out those that are in the background. We are thus arriving, step by step, at the explanation of the morbid appearances, the starting-point in deduction always being what is known of the affection the presence of which is suspected, and the symptoms of which we are contrasting with those before us. For the conclusion to be valid and exact, it is, of course, requisite that each part of the testimony have the proper position assigned to it. In reasoning correctly on symptoms,

the same laws apply as in reasoning correctly on any other class of phenomena; the facts have to be sifted and weighed, not merely indiscriminately collected. And while the intellectual act is being performed, much collateral evidence is to be sought before a final judgment is given; especially is it necessary to view the symptoms with constant reference to age, sex, and habits of the patient, and to the circumstances amid which the disorder develops itself. To accomplish all this effectually, the practitioner has need of much and varied knowledge. He must be master of something more than of the information supplied by Semicology. He must be an Anatomist to pronounce with certainty on the seat of the malady; a Physiologist to appreciate the aberration of functions. Above all, he must be a Pathologist in the full sense of the term; he must understand the antagonism between diseases; the frequency with which they coexist; the influence of remedial agents on them, and be cognizant of their natural history and of the general laws governing them; for how else can he form an estimate of morbid action while in progress? Then it is desirable that he should be aware of what are their current divisions and classifications. From what has already been represented, it is evident that he must also be a correct reasoner; for even a good observer will, by bad reasoning, arrive at a faulty diagnosis; just as sometimes a bad observer may, by the same process, blunder into the truth. There is, indeed, no end to the extent of knowledge which may be brought to bear in working out a conclusion regarding the character and seat of a malady. The habit of observation once acquired, information of the most varied kind will, by an accurate reasoner, be made tributary to the completeness of the diagnosis. Every fresh acquirement tends to enlarge our powers of insight, just as in nature, the higher we ascend the more fully lies the view before us. Having thus indicated the elements of a precise and thorough diagnosis, we may next inquire in what way this is most speedily and conveniently arrived at when at the bedside. The main facts of the case on which the deductions are to be based are, of course, first elicited; and we shall presently see how this may be most effectually done. We lay hold of the main facts, and especially of those which are the most direct signs of the morbid action. They are coupled together, and the inquiry is started as to what organ they indicate as the seat of the malady. This often has been already determined by the very method of the examination; and we therefore proceed at once to investigate the precise nature of the disorder by analysing the symptoms and the previous history. Sometimes, however, the site of the disease does not admit of being definitely fixed upon, or we can only in a general manner decide upon the function impaired. Again, as in idiopathic fevers, we may find

no signs of local disease, merely those of a general disturbance. In any of these instances, clinical experience steps in to explain the phenomena as far as possible, and to inform us in what affections they occur. It may be only in one; then the desired goal or point is at once attained. But, as above stated, there are few signs in themselves pathognomonic. It is, therefore, to be ascertained which one of the disorders is before us that special pathology teaches may yield the symptoms encountered. One of these is taken up. Its symptoms are placed side by side with those present. They accord in some respects, but not in all. Moreover, in searching for some of the phenomena which the supposed malady gives rise to, these are not found. The view is abandoned and another taken up. It agrees in all particulars. The diagnosis is made. Yet, when the diagnosis is thus arrived at, we have, before it can be considered as complete and be acted upon, still to determine whether or not any other morbid state exists, and to take into account the patient's general condition and his individuality.

The above is a mere outline of medical diagnosis, having a general significance rather than a special connection with any malady. An incorrect diagnosis from want of a proper history does not, on the whole, often occur. Sometimes, however, this may happen, when the most valuable diagnostic data are wanting.

Our Contemporaries.

MEDICINE.

Sudden Death in Cases of Pleural Effusion.

It is well known that in a case of pleural effusion in which one side of the chest is so full of fluid that it is completely dull to percussion from top to bottom, there is a liability to sudden death. The question arises: Why should this be so? It is by understanding the reasons for it that steps can be adopted to avoid such a catastrophe.

At the autopsies that have been made upon cases of the kind, definite causes for death have been found in a small number of instances: such causes, for example, as thrombosis of a pulmonary artery, pulmonary embolism, cerebral hæmorrhage, rupture of an empyema into a bronchus, myocardial degeneration, and so forth. In the great majority of the cases, however, there is nothing found at the autopsy to account for sudden death. The pleuritic effusion is there, but there is nothing macroscopic to account for the clinical fact that, whereas for days this same

effusion was well borne, all in a moment something led to immediate death.

DANGERS OF THE SITTING POSTURE.

It seems very likely, therefore, that the immediate cause of death in these cases is a sudden alteration in the vascular conditions within the thorax. That this is really so is further suggested by the fact that this sudden death seldom or never occurs when the patient remains perfectly still, but only when there has been a sudden change of his position. The most dangerous of all such alterations in position is that from a recumbent to a sitting posture. In nearly every case in which a large pleural effusion has led to sudden death, it has been when the patient has sat up in bed.

When the patient remains always in the same position the circulation of the blood within the *venæ cavæ* and auricles of the heart becomes accommodated to the external pressure to which the blood within these tubes and cavities is subjected.

THE EFFECTS OF REDUCED INTRATHORACIC PRESSURE.

It is clear that if a large pleural effusion of five or six pints could be poured out within a few moments there would be no time for the pressure of the blood circulating within the intrathoracic veins to become accommodated to the suddenly increased pressure outside those veins, and the patient would be dead in a moment or two from stoppage of the circulation. Such sudden effusions into a pleural cavity, fortunately, do not occur; even in the acutest cases the rate of effusion is such that there is time for the intrathoracic venous circulation to adapt itself to the rapidly, but not suddenly, increasing pressure outside. Dyspnoea is common until such accommodation has become established, and then it disappears if the patient keeps still. The pressure within that pleural cavity into which the effusion has taken place will be greater or less according to the amount of fluid that the confined space is compelled to hold, and at any given time this general pressure of the pleural effusion will be constant, though it will vary gradually according as the activity of the inflammatory lesion increases or abates.

THE FACTOR OF GRAVITY.

In addition, however, to the general intrapleural pressure, which is at any moment constant, there is the factor of gravity to be taken into account as well. The hydrostatic pressure caused by gravity will vary with the vertical height of the column of fluid that bears upon any given point, and it is greatest at the bottom of the cavity. If the patient be lying upon his back the height of the column of pleuritic fluid

above the level of the inferior vena cava will be several inches less than when he sits up. If the circulation is only just maintained when the hydrostatic pressure upon the outside of the inferior cava is that of the pro-cumbent position, it may when the patient sits up be obstructed altogether. Granted time, the pressure in the abdominal portion of the inferior vena cava will slowly rise until blood will be driven past even this obstruction; but it is just this time which the patient is unable to give; he is dead before the accommodation can be brought about. If the patient has been sitting up and then suddenly lies down there is a similar sudden disturbance of the distribution of the intrathoracic pressure, but it is less severe in degree than when the patient passes from the recumbent to the sitting posture.

SOME RULES TO BE OBSERVED.

The thing to be borne in mind is, that it is not so much the actual pressure of the pleural effusion as the suddenness of any change in its distribution that is dangerous. The practical points that can be deduced from this are:—

1. That a patient of the kind should on no account be allowed to sit up or change his position suddenly.
2. That such a patient should consequently always be dealt with at his own home; he should on no account be transferred to a hospital or elsewhere until steps have been taken to lessen the quantity of fluid in his chest.
3. That the gradual removal of the fluid through a Southey's tube is infinitely preferable to its sudden release by aspiration.
4. That the very greatest care should be taken not to move the patient about unduly, either for purposes of physical examination of the chest or for cleansing the skin before the insertion of the Southey's tube. It is so much easier to wash the chest wall and insert the tube when the patient is in the sitting position that unless particular instructions are given to the nurse the patient is very apt to be allowed to sit up before the doctor can stop it.

The general condition of the patient is no guide as to whether sitting up may be allowed or not. He may say he is perfectly able to sit up, and in his vigour he may move with such energy that a minute or two later he is dead. When a pleural cavity is quite full of fluid, all sudden movement of every kind should be absolutely avoided until part at least of the fluid has been removed. — *The Hospital*.

Functional or Hysterical Pyrexia.

Pyrexia is very nearly always a symptom of importance. Nevertheless, in certain patients, especially those of hysterical or neurotic temperament, the thermometer may register temperatures to which no particular importance can be attached, except in so far as they may cause difficulties in diagnosis. When the pyrexia is slight, it is next to impossible to be sure whether it is due to functional or organic trouble, but when it is extreme there is much less difficulty in interpreting it; for in the functional cases there is no symptom of visceral derangement at all proportional to the pyrexia, nor is there any clinical change when the pyrexia abates or disappears. It would seem that the thermometer, for some reason, registers a temperature which is not that of the circulating blood, for the viscera show no signs of being bathed in superheated fluid. Nevertheless, the pyrexia is not artificial in the sense that the thermometer has been deliberately interfered with by the patient. There are malingerers, of course, who know how to make the mercury rise abnormally high, but apart from these there are also patients in whom the temperature, registered in the ordinary way with all precautions to avoid fraud, is abnormally high without there being any organic disease.

The following are two cases in point:—

The first is that of a young unmarried woman who had for years suffered from a variety of the symptoms of hysteria major. She was subject to convulsive paroxysms, in which she was extremely violent and hysterical. She had also suffered from transitory paralyses; profound sensory disorders, both of cutaneous sensibility and of the special senses; and so on. One morning after a very violent hysterical and convulsive seizure, she was attacked with complete paralysis and anæsthesia of the whole of the left side, with the exception of the face. She was conveyed to a hospital, and there she had more than thirty convulsive seizures in twelve days. She remained thus for several weeks, sometimes passing two or three days at a time without eating, without micturating, and in a state of absolute mutism. Then she seemed to wake up as though from a dream, and for several days appetite and speech would return, urine would be voided, and after an interval a fresh seizure, with its subsequent symptoms, would occur. At first all sorts of treatment were tried. Later, simple nursing alone was resorted to. One morning, after one of the most violent attacks of wild hysteria, the skin seemed to be hot and dry, and the pulse frequent. The axillary temperature was taken, and it was found to be 102.2° F., the pulse rate being 98 at the same time. The most careful examination failed to discover any visceral trouble, but it

was thought that something might have developed by the morrow. This was not so, however, and throughout the period of observation there was not the slightest sign of any organic visceral mischief. The temperature was 101.4° F. on the second day. Then followed two days during which it was impossible to use the thermometer upon the patient, who was a prey to a series of most violent attacks of hysterical convulsions which ended either in an interminable hiccough or else in sobs and floods of tears. By July 23 the woman was calmer, and from that time onwards her temperature was taken morning and evening whenever possible for three weeks.

It will be seen that for the whole period of three weeks there was continuous pyrexia. Notwithstanding that the nurse never left the patient whilst the temperature was being taken, the precaution of taking it one self and independently both in the axilla and in the rectum simultaneously was adopted, different thermometers being used at different times. The rectal temperatures were sometimes higher, sometimes lower, than those obtained in the axilla, but the difference was never great. It is clear that there was no malingering on the patient's part.

Notwithstanding persistence of the pyrexia for these three weeks, the patient's respirations remained natural except during the paroxysms of hysteria; the alimentary system was not affected in the least, although it is always the first to be upset in cases of real fever; the tongue remained moist, and when the patient passed days without eating this was not because of gastric disorder, but the result of nervous disturbance.

After three weeks there was a sort of crisis of defervescence, like that of lobar pneumonia; but unlike what occurs in the latter disease, the general condition showed no sudden alteration at the same time; it remained just what it had been before, and it was neither better nor worse than it had been during the pyrexial interval.

At different times there had been a question as to whether the patient might not be really an epileptic, but the attacks from which she suffered were typically hysterical; there was no initial cry, consciousness was never completely lost; the convulsions were entirely clonic, without a tonic stage; the tongue was never bitten, and there was never a true coma at the end of an attack, the latter nearly always terminating either in deep sobbings or else in long-continued and frequent hiccough. Moreover, hyperpyrexia in an epileptic is always a very grave matter, whereas in this patient there was never any evidence of danger. In fine, the case seemed to be one of unusually severe hysteria, accompanied at one period by extreme hysterical pyrexia.

The other case was less severe as regards the general symptoms of hysteria, but even more marked than the above in respect of pyrexia and periods of hyperpyrexia. She was a woman of very nervous temperament, and almost every evening about seven o'clock she was seized by an "attack of nerves," which usually lasted without intermission until about one in the morning; in these attacks she was extremely restless and complained of all sorts of subjective sensations, of which the chief were feelings of oppressive heat and ideas that her limbs were being bent and strained to the breaking-points of the bones.

For more than a year past she had been noted to have bouts of pyrexia, considerable in degree, coming and going suddenly without any apparent cause other than her neuroses. At the beginning of one November the patient had a continuous morning and evening temperature of 103° F., rising during December to 104° F. and reaching 105.8° F. on December 24.

The pyrexia lasted continuously for three months, and it was never accompanied by any visceral trouble; even appetite was not interfered with. When the trouble ceased, it did so instantaneously, without any convalescence. Loss of weight and strength were not in evidence, as they are in any ordinary febrile illness, and this notwithstanding the fact that there had been hyperpyrexia repeatedly. It seems almost certain that the hyperpyrexia in these cases is altogether of a different kind to that seen in such illnesses as lobar pneumonia, for example. Its main importance lies in the fact that, if correctly diagnosed, it is free from danger.—*The Hospital*.

Saline Infusion.

Infusion of saline solution into the subcutaneous tissues of the axilla or of the legs, or into a vein, or into the rectum, is a measure of undoubted usefulness in certain cases, notably in conditions of collapse from hæmorrhage, or from peritonitis, or in the shrunken condition of infants suffering from diarrhoea and vomiting; the main indication for infusion is that the patient's tissues should have been in some way depleted of their full quantum of water, and it is now held to be very preferable to replace that water by slow, continuous infusion rather than by the rapid injection of a large quantity in a short time.

It is not so much, however, of the methods and benefits of infusions that we would speak here, but rather of the nature of the fluid with which infusion should be performed. The one and only object kept in mind, as a rule, has been to ensure that this fluid should be isotonic with the blood

—that is to say, that when blood is mixed with the infusion fluid the proportion of salts in the latter shall be exactly such that no water should pass from it into the red corpuscles nor any be drawn from the red corpuscles into the fluid. We venture to think that far too little stress has hitherto been laid upon the nature of the salts used to make the fluid isotonic with the blood.

Ordinary normal saline solution is made by adding rather more than a drachm of sodium chloride to each pint of water. This, it is true, is isotonic with the blood, but it has long been known to physiologists, since RINGER'S experiments were made upon the perfusion of frogs' hearts, that a solution of sodium chloride alone is far less efficacious in stimulating the heart to its best contractions than is an isotonic solution containing other salts besides—notably those of calcium and potassium. It is surprising that this physiological fact has not been fully brought to bear in the treatment of human beings. RINGER'S solution, made isotonic for human blood, would be a far better liquid for infusing with than is normal saline.

The following is a liquid which has been recommended for the purpose:—

R	Sodii chloridi	...	...	6.50 grm.
	Potassii chloridi	...	...	0.30 grm.
	Calcii chloridi	...	...	0.20 grm.
	Magnesi sulphatis	...	...	0.30 grm.
	Sodii bicarbonatis	...	...	1.00 grm.
	Sodii glycerophosphatis	...	...	1.00 grm.
	Glucosi	...	...	1.00 grm.
	Aquam destillatam ad	...	1000.00 cc.	
	Oxygen gas to saturation.			

The oxygen is added with the idea of making the fluid still more like the blood plasma; the glucose is not essential, but it is held to be of service. The proportions of the other ingredients need not be altered if the glucose is left out.

This solution has the power of keeping spermatozoa alive for several days if the temperature is maintained at that of the body. Spermatozoa will not live in this way in ordinary normal saline, which is a good argument in favour of the less simple fluid for purposes of transfusion or infusion. It has, indeed, been used in many cases on the Continent, and its advantages have been demonstrated to be not merely theoretical.—*The Hospital.*

Sudden Death.

BY

PROF. ROBERT SAUNBY, M.D., M.Sc., LL.D., F.R.C.P.

The Church Litany contains a prayer for deliverance from the perils of battle, murder, and *sudden death*.

By sudden death is generally meant death which comes unexpectedly or, if we may elaborate a little, we may say, that has not been preceded by warning symptoms of its approach.

This prayer expresses a feeling which is widespread, yet, on reflection, as death is inevitable and must come to all of us, it is most merciful when it comes unawares and all is quickly over. As one gets to a time of life when necessarily the portion of existence left can only be short in comparison with that which has passed, the least reflective person may sometimes wonder in what way he shall make his exit from the stage on which he has played his little part, and would probably like to think that when the time comes he will not be long about it. I admire and envy my old friend and master, the late Professor ANNANDALE, who only a few weeks ago, after a full day's work, having operated at the Royal Infirmary in the afternoon, was found next morning dead in his bed. In such a death, sudden though it be, there is nothing terrifying; he had done his duty up to the last, and lay down to rest from his labor. Why should we murmur if his sleep was that from which there is no awakening? He was æt. 68, so had lived nearly the allotted span of human life, and he went to his long home without knowing the weakness and infirmity of old age.

But sudden death raises certain civil and professional questions with which we, as medical practitioners, have to deal.

In our capacity of private medical advisers we are expected to foresee and forewarn against this danger, and, armed with the authority conferred on us by the law, it is our duty to give a satisfactory explanation when we can, and to aid the officers of Justice in discriminating between death due to natural causes and those which are the consequences of crime. Hence we are called upon to familiarise ourselves by observation so far as opportunity is afforded us, and by reading and study which are open to all of us with those natural causes by which life may be unexpectedly ended.

Sudden death may occur—

1. In the course of acute disease.
2. In the course of chronic disease.
3. In apparent health.

We may leave out of account for the present all those cases where death is caused by injury or shock, for, interesting as they are, they would carry us too far and exceed the limits of time at my disposal.

1.—IN ACUTE DISEASE.

Death in acute disease may be tragically unexpected, and there are few circumstances under which it comes with a greater shock to relatives and to the medical attendant. Perhaps the best and commonest illustration is seen in diphtheria. I remember such a case when I was a student, and the impression then made is indelible. One of our house physicians, a strong, healthy young man, caught diphtheria in the Infirmary; he was getting better, when he sat up in bed and died suddenly. I had a similar case at the old Hospital where the patient did not sit up and every precaution was taken. There had been no evidence of heart weakness, and I had remarked on the absence throughout of serious constitutional symptoms, although the throat condition was well marked.

Such sudden deaths occur in other acute diseases, especially in typhoid fever and pneumonia, but, happily, they are rare.

2.—IN CHRONIC DISEASE.

This is a chapter which might be extended to very great length if I were to enumerate all the conditions under which it occurs. I do not here include cases in which there has been no previous illness, where the evolution of the disease has been latent, those will come in the next series; but I refer to patients who are known to be suffering from some chronic disease but death is not expected, as for example, in chronic phthisis, where a sudden rupture of an aneurysmal dilatation of a vessel in an old pulmonary cavity may cause sudden death. I remember seeing a lady a good many years ago who was suffering from fibroid phthisis, a very chronic form of the disease, which often lasts twenty or thirty years, and I had laid stress upon this favorable aspect of the case to her husband. The next day a sudden violent hæmorrhage carried her off, and since then I have guarded myself in my prognosis against this accident.

In phthisis, too, sudden death may occur from embolism or from syncope, and either may cause death in cancer.

The liability of the subjects of heart disease to die suddenly is generally admitted, but it is chiefly where the aortic valves are incompetent that this occurs. The late DR. TILBURY FOX, the well-known skin specialist, died in this way at a comparatively early age. He and his wife had run over to Paris for a short holiday, and while there one night he woke her from her sleep, asked her to kiss him, and died. Some pang there may have been that roused him and gave the opportunity for that brief

parting, or he, too, would have been one who died in his sleep. But sudden death may occur in other forms of heart disease. I have seen a case of mitral stenosis lying quietly in bed in the ward suddenly attacked by acute œdema of the lungs, and die in a few minutes. Of the suddenness of death in angina pectoris we are all sufficiently aware.

I do not need to lay stress on the risk of rupture of an aneurysm, although it is comparatively rare; or to the possibility of death resulting from a ruptured varicose vein. But the danger of sudden death in phlebitis is not fully appreciated, or we should not have had to regret the untimely death of SIR RICHARD THORNE, who could not be persuaded to rest while suffering from an attack of gouty phlebitis of the femoral vein.

Death may occur suddenly from the rupture of varicose, submucous œsophageal veins in cirrhosis of the liver, and, indeed, it came in this shape, without warning, at Bath railway station, to the great DR. T'ODD, the apostle of alcohol in the treatment of acute disease, perhaps the victim of applying his own prescriptions inopportunistically to himself.

Intestinal obstruction may cause sudden death in old incarcerated hernias, from the presence of adhesions set up by pelvic inflammation, from chronic appendicitis, from ulcer of the stomach, from impaction of a gall-stone; in all these cases, however, there are symptoms of severe abdominal pain and vomiting, so as to suggest poisoning. The late SURGEON-GENERAL HARVEY, Director-General of the Medical Department of the Army in India, had suffered for years from chronic dysentery with resulting matting together of the intestines and chronic obstruction. He came home to seek advice, but was dissuaded from an operation. He reached Bombay on his return to India safely, but in the train journey to Simla was attacked by symptoms of acute obstruction, and although the abdomen was opened it was too late to save the life of one who was an ornament to the Service and the friend of everyone who knew him.

Rupture of the spleen is another frequent cause of sudden death in malarious countries, where this organ becomes enlarged, hard, and brittle, so that a blow or a fall or even a sudden effort may be sufficient to burst the capsule.

Chronic Bright's disease is accountable for many sudden deaths by apoplexy by epileptiform attacks, followed by coma and death, by severe and fatal dyspnoea; less common are acute œdema of the larynx and acute œdema of the lungs.

It is also well known that the lives of diabetics hang by a thread. Such a patient runs to catch a train, sinks exhausted into a seat, and dies from heart failure, or after the fatigue of a moderate walk or the shock of

a small operation such as the extraction of a tooth, or some emotional excitement, is seized with abdominal pain, rapid pulse, and breathlessness, followed by coma and death. With all these your text-books have made you familiar.

We all know, too, that persons suffering from Graves' disease, from disease of the middle ear, from acromegaly, from bulbar paralysis, and from various forms of insanity are liable to sudden death, and that life insurance companies rightly refuse to take these risks.

3.—IN APPARENT HEALTH.

But now let us pass before all my time is exhausted to the most startling and most tragic cases where death comes suddenly and unexpectedly to persons in apparent health, and let us consider some of the conditions in which that may occur.

When I was pathologist to this institution, a man who was walking rapidly along Summer Lane about 1 o'clock in the day, was seen to stagger and fall; he was picked up and brought into the hospital, which was only a few yards away, but when seen he was quite dead. I made an examination of the body and found nothing in the abdominal or thoracic organs to account for death, so I cut out the larynx with the tongue and the neighbouring soft parts and drew them down. When I had done this I saw lying over the opening of the larynx and firmly plugging it a large piece of unmasticated beef steak, which I suppose the man was eating as he hurried back to his work, and which, being tough, he had probably bolted. Such cases are rare, but it is well to know that death may be caused quite suddenly in this way, apparently from inhibition of the heart, for mere asphyxia would be far less speedy.

Some years ago a well-known English actress went to Paris for a short holiday, and took a drive in the Bois de Boulogne; while taking tea at the restaurant by the Cascade she was seized with sudden pain in the abdomen, turned pale, and died. A *post-mortem* examination showed rupture of a tubal pregnancy, a fact which was suppressed, as the lady was not living with her husband, and death was attributed to "internal hæmorrhage."

BROUARDEL relates the case of a tripe-seller, *æt.* 20, who fell down dead while serving a customer; both lungs were found to be riddled with tubercles, but there had been no symptoms of the disease during life.

An engineer, employed at a colliery near Rowley Regis died suddenly, and I was asked to make a *post-mortem* examination. He was supposed to have been in perfectly good health, and had not been absent from his work for a single day during the previous two years. I found his

stomach distended with blood from a ruptured varicose œsophageal vein, and his liver in a state of advanced atrophic cirrhosis, but there was no ascites.

A man came to me in the out-patient room complaining of pain in the back; I sent him to undress, but soon after, hearing the sound of a fall, I went to him and found him dying; in a few minutes all was over. At the examination of the body we found a small aneurysm of the thoracic aorta not larger than a walnut; its posterior wall was formed by the muscles lying over the spinal column, while there was a round atheromatous ulcer in the posterior wall of the aorta about as large as a florin; the aneurysm had given way laterally, and the blood had poured into the cavity of the thorax.

A few days ago a man was walking past the General Post Office when he was seen to fall, and the policeman who ran to assist him found him dead. He was brought to the hospital. On examining the body, a rent was found in the wall of the left ventricle half an inch in length; there was atheromatous blocking of a branch of the coronary artery and fatty degeneration of the muscle supplied by this branch.

The COMTE DE CHAMBORD, whom some Frenchman called Henry the Fifth, died suddenly, and at the *post-mortem* examination, the œsophagus was found deeply ulcerated, for which no explanation was forthcoming. A less august personage, Chas. B., *æt.* 36, was locked up at 11.30 P.M. by the police for being drunk; his cell was warm, and he had two blankets; at 2 A.M., he had some hot coffee; at 6 A.M., he complained of feeling ill, and at 7, as he was worse, he was brought to the hospital. When admitted, he was unconscious, cyanosed, and breathed stertorously; he died an hour later. The *post-mortem* examination showed acute sloughing of the œsophagus, which was attributed to some corrosive poison, but there was no evidence to show that he had obtained any. Was our pathologist right, or is there, as BROUARDEL appears to believe, some unknown cause of acute œsophageal inflammation?—*Medical Press and Circular*.

Treatment of Kala-azar.

[We quote the following Report of the Second Physician, Major C. Donovan, I. M. S., from the Annual Report of the Government General Hospital, Madras—ED].

My cases have been treated with fuchsine 1 c.c., of a 20 per cent. solution three times a day, with more or less satisfactory results.

I adopted this treatment on perusal of NIERENSTEIN's article in the *Lancet*, in which he stated that fuchsine is the most promising of the aniline dyes tried in sleeping sickness. The patients in the hospital here are very impatient of a long course of treatment and did not give me an

opportunity of noting the results to be obtained from a lengthened term of medication. A boy aged 14 years was the only exception, whom I persuaded to stay for 6 months, and there is no doubt but that he improved markedly; he was put on fuchsine, of doses above mentioned, in August and discharged a few days ago, perfectly well, the liver and spleen almost reduced to natural limits. In the other cases I was unable to judge, as a month was the longest period I could get them to remain in hospital; however, these cases appeared to improve and had no complications. Latterly I have changed from fuchsine to Liquor Arsenii et Hydrargyri Iodidi and Vinum Antimoniale, but so far I cannot report results for want of sufficient observation.

Change of air, especially to a dry hot climate, appears to bring about a cure in some cases. A few of my old Kala-azar patients have returned to see me, restored to health and apparently quite well. I may mention these places in our Presidency answering to suitable sanatoria (if I may use the expression) for Kala-azar, to wit, Kurnool, Cuddapah and Anantapur.

Dysentery.

[We quote the following Report of the First Physician, Lt. Col. R. Robertson, I. M. S., from the Annual Report of the Government General Hospital, Madras.—ED.]

In the treatment of this disease I have tried powdered cinnamon with considerable success both in Natives and Europeans. The patients seem to prefer this mode of treatment to that of Bismuth or Sulphate of Sodium, certainly the flavor is to be preferred; I have combined it with Salol, 30 grains of Cinnamon and 5 of Salol every fourth hour. The results are surprising with weakly natives and children. In amoebic dysentery the Ipecacuanha treatment has been very effective. I have given it in capsules of 30 grains once daily in the early morning, the usual sedative and counter-irritant having been previously given. I think it better to administer it in capsules than in the huge boluses of former days. An anti-dysenteric Vaccine from Kasauli was tried in two cases; in one case of acute dysentery two injections were given and the cure was complete; in the other case previous treatment had been resorted to but failed, on the hypodermic injection being administered recovery, was fairly rapid.

Treatment of Nervous Pains by the Ether Spray.

PROF. LEMOINE (*Four. de Med. et de Chirurgie Prat.*, Nov. 10, p. 828).—The use of a spray of ether is a simple and satisfactory means of relieving certain painful phenomena in such conditions as hysteria, tabes, and other nervous affections. RICHARDSON'S or some similar spray is

employed from 3 to 5 minutes, 2, 3, or 4 times daily as may be necessary. Similar results may be obtained with chloride of ethyl, but ether is to be preferred as it acts more slowly and less energetically on the tissues and causes no subsequent congestion. Indeed ether produces a markedly decongestive action not only on the skin and superficial parts, but also on the structures underlying the area to which it is applied. The applications are sometimes made over the painful area, at others in relation to its nerve supply. Thus in intercostal neuralgia a direct application to the course of the nerve is less effectual than one along the spinal column and at the point of exit of the nerve involved. The pain of pleurisy is best treated by spraying the painful spot, while nervous or flatulent dyspepsia and hysterical cardiac embarrassment may be relieved by applications to the epigastrium and precordial regions, respectively. Pain in the arm in a hemiplegic patient has been successfully treated by spraying the Rolandic area and the posterior aspect of the cervical spine. This method of treatment is satisfactory, simple, and entirely devoid of risk. It may be applied with safety to patients suffering from cardiac disease, albuminuria or diabetes.

Wrongful use of Diuretics in Acute Nephritis.

It would seem that caution in the use of such remedies as stimulate the functions of the kidneys in acute nephritis, should be entirely unnecessary, but this is the usual procedure to the detriment of those afflicted. Buchu, potassium nitrate, chlorate and turpentine should never be used in this condition. When there is suspended function of the kidneys, compensation is usually in evidence, and rest should be promoted rather than increased activity through diuretics. When compensation is not in evidence agents should be sought which will aid until it is restored. Relief, not overwork, should be the aim of the attendant. Flushing with frequent draughts of water, should be cautiously prescribed. Cathartics, elimination through other means than the natural one should be brought about. Digitalis will be found very serviceable, but should not be continued beyond restored compensation.—*The D. and H. Gazette.*

Subnormal Temperature in a New-born Child.

(*Pediatrics*, January, 1908, p. 33).—F. W. LOUGHRAN.—On the fourth day of life a female child, hitherto apparently healthy, had a temperature of 106° F. For the next fortnight the temperature remained high. The condition was attributed to septic infection, the point of entry being the umbilicus. On the day before death the rectal temperature registered only 80° F. Several thermometers were used and left *in situ*.

ten minutes. Three hours before death the temperature was 78°. F. J. D. ROLLESTON.—*The B. J. of Children's Diseases.*

The Early Diagnosis of Measles.

A. ALY-BELFADEL (*La Semaine Medicale*, Jan. 8, p. 22). From examination of children exposed to the contagion of measles before the appearance of the rash the writer states that the prodromal conjunctivitis presents special characters which distinguish it from the conjunctivitis of ordinary coryza. In the latter the injection of the mucous membrane usually begins at the cul-de-sac of the eyelids, whence it extends to the ocular and palpebral surfaces. In the early conjunctivitis of measles the first sign of injection is observed on the bulbar conjunctiva on either side of the cornea directly opposite the palpebral fissure. If seen sufficiently early the redness occupies the usual situation of pterygion, but spreads so rapidly that by the following day the whole mucous membrane of the eye is involved. This sign was found in over 70 per cent of the cases examined, and so early that the careful examination of the skin even with a blue glass failed to reveal any trace of eruption.—*The Medical Review.*

Quinine in Cholera.

During the epidemic of cholera which raged on the Yangtze some years ago the Surgeon of the U. S. Gunboat *Villalobos*, who was travelling on one of the infected steamers, had no other drug at his disposal, so he treated a case with large doses of quinine. At the time we paid little attention to this remedy for cholera, but since then the use of it has been brought before the attention of the profession by PROFESSOR KOCH, who recommended its use. USSHER in the Philippines, acting on KOCH'S suggestion, has met with decided success in the treatment of the outbreak of cholera which took place there some time ago; as many as ninety per cent. of the patients recovering. The plan of treatment was as follows: Sulphate of quinine in ten grains doses every hour until the ricewater stools had disappeared and bile was passed in the motions. For suppression of urine, friction of the limbs, hot fomentations, dry cupping over the loins, and sweet spirits of nitre were found useful. When evidence of failing circulation supervened, subcutaneous injection of saline solution proved beneficial.—*The China Medical Journal.*

SURGERY.

Rectal "Don'ts."

BY

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Don't take anything for granted—see for yourself.

Don't take it for granted that a patient is suffering from hæmorrhoids simply because he tells you so. He may have the piles; but he may also have something more serious.

Don't move the bowels for eight days after a "Whitehead" operation.

Don't treat a patient for prostate trouble, without first eliminating fissure. Fissure in ano very often causes retention of urine—or the reverse, frequent urination.

Don't decide a patient is suffering from flights of the imagination when he tells you that he must move his bowels, following a hæmorrhoidal operation. It is well to make an immediate examination, in such cases, as the patient is possibly having a hæmorrhage.

Don't, necessarily, be alarmed when a patient has a rise of temperature following a rectal hæmorrhage, for it will probably subside in a few days. However, it is well to keep careful watch, as it may mean infection.

Don't prescribe for a patient with diarrhoea, without searching for the cause; for it may mean a feebly growing bacteria, like gonococci, require malignant condition. Diarrhoea is one of the earliest symptoms of cancer.

Don't take it for granted that a patient is suffering from bleeding piles just because he passes blood every time he has a movement of the bowels, because he may be suffering from prolapse of the sigmoid, ulceration, fissure, or cancer.

Don't advise an operation for the relief of hæmorrhoids without first eliminating cancer, cirrhosis of the liver, and stricture.

Don't advise an operation for the relief of hæmorrhoids in a patient suffering from tabes dorsalis. If you do you will spend many a sleepless night trying to stop the hæmorrhage. Moreover, these cases are never relieved by operation.

Don't be alarmed if diarrhoea follows an operation around the rectum, in which you are using dressings of balsam of Peru and castor oil, as this medication sometimes produces diarrhoea. Stop using it and substitute ichthyol, and the diarrhoea will subside.

Don't try to replace "Lynch's Tube" in the rectum, if it has accidentally come away; for the reinsertion is apt to work injury.

Don't forget to give your patient a hypodermatic injection of morphin after a rectal operation, before he comes out of the anæsthetic. It saves a good deal of suffering, as the chances are that the pain will not be severe by the time the morphin has worn off, and the patient will not know he has had an anodyne. If the patient is given morphin after he has come out of the anæsthetic, he will often insist on its being repeated and on its being kept up. You are then in trouble to eliminate it from the program.

Don't remove the first packing, after an operation for fistula, till after forty-eight hours have elapsed.

Don't treat all cases of constipation alike. Some need drugs; some, local treatment, and still others require operation.

Don't forget prolapse of the sigmoid, if a patient gives a history of chronic constipation and has periodic attacks of severe griping pain, followed by the passage of blood. These cases are generally relieved, for the time being, by enemas, given in the knee-chest position.

Don't let your nurses blister your patients with hot-water bags. The water should always be prepared in a pitcher, and not run direct into the bag. Direct the nurse to test it by thermometer, and see that it is not above 120° F. A flannel cover over the bag is also advisable.

Don't give a cathartic for two weeks following the closure of an artificial anus; you may have to do a resection, if you do.—*American Journal of Surgery*.

Genitourinary Diseases—Acute Gonorrhœa.*

BY

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TREATMENT.

There can be no routine treatment applicable to all cases of acute male gonorrhœa for obvious reasons. We must first determine (as described in a previous article) whether the anterior urethra alone is affected, or the posterior as well, and what complications, if any, exist; and we must judge by the complex of symptoms how virulent and severe the infection

*This is the fifth of a series of articles on Genitourinary Diseases and Their Treatment.

is. All these factors should influence us in our choice of the method to be pursued in treating the disease.

If we see the case very early—i.e., within the first twenty-four hours of the appearance of symptoms—we are justified in attempting the abortive method, if a hasty cure is demanded by the patient; if the abortive period has passed, but the disease is limited to the anterior urethra, we should aim to prevent its extension to the deep urethra, and if the latter is already involved, our treatment should be directed along lines that will seek to subdue the inflammation and prevent the development of complications.

The treatment of acute gonorrhœa in the male must have two primary objects in view—namely, to destroy all the gonococci and other germs that have lodged in the various portions of the genitourinary tract, and restore the affected parts to their normal condition. Any method of treatment that does not accomplish these results should be discarded. We are, therefore, limited in our therapeutics to such measures and remedies as will destroy the etiologic germ of the disease without inflicting damage on the affected tissues.

One fact should always be borne in mind—the intolerance of the inflamed urethra to heroic treatment. This fact renders most attempts to abort the disease futile, except in those rare instances in which the treatment is begun within a few hours after the inflammation makes itself manifest; in other words, while the disease is limited to the fossa navicularis. Once the disease has passed into the urethra proper, we should be prepared to let it run its usual course, except in so far as we can render the attack as mild and as painless as possible, and prevent its extension to the deeper parts.

ABORTIVE TREATMENT.

The abortive treatment in particular should aim to destroy such germs as are present without injuring the mucous membrane. Silver nitrate has been for many years the favorite means of aborting gonorrhœa. A very strong solution (gr. xv to 3i of distilled water) is injected into the urethra and retained for a few seconds. This is followed by a neutralizing injection of a weak sodium chloride solution, and the bladder is then emptied. Or, instead of this strong solution, a very weak solution (gr. ½ to 3i) may be used every two or three hours for five or six injections. Both of these methods are more or less painful, and often increase the inflammation instead of aborting it.

A painless method, and at the same time an effective one, is that suggested by BIERHOFF (*Med. News*, March 12, 1904), which he describes as follows:

"A microscopic examination of the secretion was first made. If the discharge was slight, and if the majority of the gonococci still were extracellular, then the protargol solution was employed in the strength of one-sixth to one-third per cent. If the discharge was at all pronounced, or if the greater part of the gonococci were intracellular, then a one-third to one-half per cent. solution was used. The method was employed, naturally, only in those cases in which the second urine was clear. After urination, the urethra was anæsthetized by an injection of a mixture of 4 c.c. of a one per cent. cocain solution and 4 c.c. of a one per cent. protargol solution. After this the anterior urethra was cleansed with 150 c.c. of the protargol solution. Following this, an irrigation of the whole urethra was made, according to JANET'S method, with 150 c.c. of the solution. The patient then emptied his bladder of the irrigated fluid. This irrigation of the entire urethra, with immediate emptying of the fluid, was repeated from one to three times in the same sitting, so that the urethra was flushed four to eight times. In addition, the patient was given a solution of protargol, one-half per-cent., with which he was instructed to inject three to five times during the day, and to retain the fluid ten minutes each time. During the succeeding days, if the gonococci had disappeared, the strength of the solution and the quantity of fluid injected were diminished, to be suspended, if the result was positive, on the fourth or fifth day, at the latest. The injections by the patient were also diminished and suspended in a similar manner. Then followed the usual provocative tests and control examinations. I will state, at this point, that I consider the continued absence of discharge, and the absence of gonococci from the shreds (which should be only minimal and chiefly epithelial), from the prostatic secretion (which must also be free of pus-cells), and from the urinary sediment, and this in spite of the tests of cessation of treatment, indulgence in alcoholics, irritating injections, and coitus condomatus, to be a proof of cure, if, after control examinations covering a later period of several weeks, the patient still remain free of discharge and gonococci. Cultures, I believe, should be employed in every doubtful case. I do not, however believe them to be an absolute necessity to determine the fact of a cure."

Another rational and sometimes effective method consists of irrigating the anterior urethra, two or three times daily for a week or two, by the JANET method, with a weak, hot, solution of silver nitrate (1-20,000), protargol (1-500), or potassium permanganate (1-4,000). It is quite possible, that whatever good is accomplished by these irrigations is to be found in the thorough flushing of the urethra with the hot water, rather than in the medium used.

When, however, the method selected for aborting the disease is not successful, as is often the case, we must resort to systematic treatment, always having in mind the axiom that the urethritis proper is by no means as serious a disease as its possible complications, and that the complications are very often the result of indiscreet and unscientific treatment.

TREATMENT OF ACUTE ANTERIOR URETHRITIS.

We may divide the subject of treatment into three divisions, *hygienic, internal and local.*

Hygienic regulation of the patient's life is absolutely necessary if a cure is hoped for, and applies with equal force to anterior and posterior urethritis. This means that the patient should avoid unnecessary physical exertion, rest as much as possible, ride rather than walk, sit rather than stand, and avoid alcohol and spicy foods. The diet should be simple, with plenty of fluid, preferably plain water, between meals. The bowels should be kept open, and for this nothing is better than the familiar rhubarb and soda mixture. The patient should be particularly instructed as to the contagiousness of the discharge, with especial reference to the care of the eyes. All soiled dressings should be destroyed by burning, and the hands carefully washed with soap and water after handling the affected parts. Of course, sexual excitement and indulgence must be prohibited.

The best dressing (if a foreskin is present) is a piece of gauze, about four inches square, with a hole cut in the center just large enough to admit the glans penis (TAYLOR). It is passed over the glans to the corona and the foreskin pulled down over it, thereby holding it in place. This dressing has the advantage of gathering all the discharges, while at the same time it does not act as a dam to the secretion. If there be no foreskin, the same result is attained by taking a piece of four-inch gauze bandage, eight inches long, and wrapping it around the penis so that at least two inches of the bandage protrudes beyond the glans. This is held in place by a rubber band or a piece of narrow bandage. The so called "gonorrhœa bags" are also of value. I think it is well that a proper suspensory bag should be worn, especially by those who do hard work. The penis should never be squeezed to bring out a discharge, nor should pressure of any kind be made, either by tight clothing or otherwise. The patient should sleep alone, preferably on his side, and should avoid warm bed coverings. If the inflammation is severe the penis should be immersed several times a day in water as hot as can be borne. To this water may be added a little permanganate of potash or bichloride of

mercury. In any event the organ should be bathed several times daily, and the interperutal cavity kept particularly clean to avoid irritation.

Internal treatment of uncomplicated acute urethritis should aim to render the urine bland and sterile—antiseptic if possible—so that the act of urination may not only be accomplished with a minimum amount of pain, but, by virtue of the added qualities, help to cure the disease, either by actually destroying the gonococci or rendering the urethra unsuitable for their development and growth. For many years it was thought best to render the urine alkaline; even at the present day the practice is current with many practitioners. Within the past decade, however, there has arisen a tendency to do away with the familiar alkaline mixtures and substitute for them the so-called “urinary antiseptics” and modified balsamics. I am inclined to believe that at least a few of these preparations have real value in the auxiliary treatment of gonorrhea; among these I include, from personal experience, methylen blue, helmitol, santyl, arhovin, salol, and urotropin.

Methylen blue, in doses of one grain three or four times daily, constitutes, in my experience, a most valuable adjunct to the local treatment. It may be given alone, or, as I prefer it, in combination with four grains of boric acid. I have also used it with satisfaction in combination with the other preparations mentioned above. Without unduly exaggerating the value of methylen blue, I believe it exerts a specific influence in gonorrhœa, having used it in many thousands of cases with a growing respect for its efficacy. Helmitol (gr. vii) has given more satisfaction in gonorrhœa than urotropin or salol, and I find that both santyl and arhovin exert a soothing and sedative effect on the inflamed mucous membrane. I never use santal oil in the acute stages.

It goes without saying that as complications arise, additional means of combating them will be found necessary; these will be mentioned in their appropriate places.

For uncomplicated acute cases, the above list will be found ample, the preference in my opinion to be given to the methylen blue and boric combination. In passing it might be well to add that this combination has many times been most efficient in curing a simple nonspecific urethritis without any other treatment whatsoever.

Local treatment may either aim to actually destroy the gonococci, or what is equally effective and less dangerous, merely render the urethral canal unsuitable for their growth, and starve them out, as it were. In either event, we should constantly endeavour to confine the disease to the

anterior urethra, and this is best done by producing the smallest amount of irritation and reaction compatible with the destruction of the gonococci.

I believe it to be the consensus of opinion that most of the preparations, with one or two possible exceptions, that have the power of destroying the gonococci in the urethra likewise have the power of inflicting more or less damage to the urethral mucosa. Such remedies should be avoided. Sanity in the treatment of acute gonorrhœa demands that nature be given a chance to rid the canal of the etiologic factor and the products of the disease, and this policy is best applied by a conservative treatment, one that constantly aims to encourage the natural tendency of the inflammation to limit itself. Having this policy in mind, any and all local treatment that causes pain or irritation is to be prohibited, on the ground that it will do more harm than good.

Local Treatment of Anterior Urethritis. At the present day there are two methods of local treatment for acute anterior urethritis that have stood the test of time. The first consists of local applications to the canal by a small half-ounce syringe, at frequent intervals; the well-known silver salts are most commonly used in this manner. The second method is the so-called JANET method of irrigating the urethral canal with hot permanganate solution under hydrostatic pressure. The use of the old-fashioned astringents has properly been abandoned. The irrigation method is not as popular to-day as it was ten years ago, and it may be safely stated that as time goes by, and as we come to understand better the value of the new silver salts, this treatment will be entirely superseded by the use of these preparations.

The *Irrigation Method* has much to commend it. The purely mechanical value of hot antiseptic fluid in large quantity flowing in and out of the inflamed urethra cannot be gainsaid, but the method is open to two serious objections—the possibility of irritation and damage caused by the pressure of this volume of water against the inflamed mucosa, and the danger of converting an anterior urethritis into a posterior with its subsequent complications, by forcing the germs in the deeper parts of the canal. While these contingencies may be considered remote in the hands of experts, it should be remembered that the irrigation is usually performed by men who are not experts, and whose sense of technic is not always adjusted to the best interests of the patient. How many cases of epididymitis and prostatitis owe their being to the faulty use of JANET irrigations, none can say, but the number surely mounts into the thousands. I admit that in the hands of men who can be trusted, as a result of experience, this column of hot water forcing its way into the anterior

urethra is capable of cutting short a virulent attack of gonorrhœa, minimizing the pain and stopping the discharge; but in the hands of the average man this same column of hot fluid becomes a danger and a menace to the future welfare of the patient. Moreover, the same, if not better, results can be attained without running the risks of extensions and complications, by a judicious use of the silver salts, though it must be conceded that the latter method of treatment does not present the spectacular appearance to the patient that the irrigation method does. Those who practice this treatment advocate its employment daily, or twice daily preferably, copiously flushing out the urethra under hydrostatic pressure. As pointed out by the late DR. TAYLOR, these irrigations seem to cut short the acute stage, but increase the terminal stage—the result being a tendency to the development of chronic catarrhal urethritis. In nonspecific urethritis, this is, in my experience, the treatment *par excellence*. A few irrigations given daily will often suffice to cut short the attack and cure it entirely. In acute gonorrhœal urethritis, however, I find it possible to get equally good results with other methods of treatment, without subjecting the patient to the palpable risks involved in the irrigations, and I have therefore not used this method for five years or more.

The most rational and dependable method of treating acute anterior urethritis is a combination of the internal use of one of the urinary antiseptics above mentioned, with the local employment of one of the new silver salts. In the average case, if it has not been permitted to grow too severe and virulent, very satisfactory results will be had if these new remedies are used properly. The most popular of these preparations in the order in which they were presented to the profession, are argonin, largin, protargol, argyrol, and nargol. With the first two I have had no experience whatever. The others have proven of considerable value in my hands, having for some time past used them* to the exclusion of all other remedies. I believe all three are equally effective in their respective strengths—i.e., protargol, $\frac{1}{2}$ to 1 per cent., argyrol $2\frac{1}{2}$ to 5 per cent., nargol 1 to 2 per cent. Argyrol has the disadvantage of staining everything with which it comes in contact a deep brown, which happily can be removed by a 1-500 solution of bichloride of mercury. Protargol is occasionally more irritating than the other two, but I think it is the best of the three in the declining stage.

The earlier treatment is begun the better result can we expect. The solutions must be made fresh every day. I find it inadvisable to give the

* For experimental purposes I have used protargol exclusively at the Beth Israel Hospital; nargol at the West Side German Dispensary, and argyrol at my private clinic.

patient more than one, sometimes two, injections daily, and the weaker the solution the better the result. I usually begin with a $2\frac{1}{2}$ per cent. solution of argyrol, 1 per cent. nargol, or $\frac{1}{2}$ per cent. protargol, once daily, unless the discharge is very annoying, in which event I give a second injection. These are retained at least ten to fifteen minutes—the longer the better. Under these weak solutions the pain ceases, the discharge is kept under control and gradually disappears, and extensions to the posterior urethra are reduced to a minimum. Gradually, yet slowly, I increase the strength of the solution, always studying the urine for the effect that my remedy is producing. If the urine continues to come out very cloudy and full of pus, I diminish the strength of the solution; if it begins to clear up, I increase it. This is done on the theory that the more virulent the inflammation in the canal the less powerful and irritant is the remedy to be applied. I prefer to give the injections myself or have them made by a trained assistant. I rarely allow the patient to do this at home, because a faulty injection often brings on extensions and complications, and few patients know how to inject themselves properly.

Of course it goes without saying that the internal medication is kept up, the bowels moved daily, and microscopic examinations of the urethral discharge made every few days. If at the end of the third week the treatment has progressed successfully, the urine will be clear and show a few shreds, there will be no pain and a slight watery discharge, which may or may not contain gonococci. I then use the protargol in increased strength (1 to 2 per cent.). If the urethra shows an intolerance to this change, the strength should be diminished and at the earliest opportunity increased.

At this stage the balsamics may be successfully used. Either santal oil m. x, or mistura LA FAYETTE, $\mathfrak{z}$ i three times daily, will be found effective. Santyl will be found less irritant than either of these, and perhaps equally useful.

When the fourth and fifth weeks of a successful case arrive either the protargol is increased to 2 per cent., or an astringent injection is substituted for it. If mucus is present in the urine, I prefer to use the astringent. Zinc sulfate ($\frac{1}{2}$ per cent.) or zinc sulfocarbolate (1 per cent.), or bismuth subnitrate (10 per cent.) is apparently equally effective for this purpose. These are continued for two or three weeks, and we find, at the end of six to eight weeks, a clear urine, a healthy mucous membrane, and an absence of gonococci, even after the usual tests.

It should not be supposed that this satisfactory result is had in every case: unfortunately, extensions to the posterior urethra do occur in spite

of all and any treatment, but I am convinced that under no plan of treatment are better results to be had in the average case than by the method herein described.—*International Journal of Surgery.*

OBSTETRICS AND GYNÆCOLOGY.

A Case of Intra-uterine Death of the Fœtus Occurring in Six Consecutive Pregnancies: with Observations upon the Importance of the Examination of the Fœtal Tissues for Spirochæta Pallida.*

BY

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The pathology of ante-natal death is obscure, and has been but little investigated. Syphilis is justly regarded as one of the commonest causes, and the following case demonstrates that even in the absence of a history of infection or of any clinical manifestations of the disease in the parents syphilis may be responsible for the death of the child.

A.B., aged 24, was first seen by Dr. WILLIAMSON on November 23rd 1903. She came to the Royal Waterloo Hospital because she had given birth to two still-born children, and, believing herself to be pregnant again, wished to know if anything could be done to prevent a similar mishap.

Menstruation commenced at 17, and occurred regularly every twenty-eight days until the time of her marriage. She was always a healthy girl, and was one of a family of five; her brothers and sisters are all married, and all have living children. She married at the age of 23, and two months later became pregnant. After 26 weeks' gestation she was delivered of a still-born child. Six months later she again became pregnant and again gave birth to a dead child at the end of the 28th week.

Dr. WILLIAMSON saw her five months after this event. On examination he found she was three months pregnant, but could discover no abnormal condition in the pelvis, and no signs of any general disease. The question of syphilitic infection was carefully inquired into, but with an absolutely negative result. Neither she nor her husband had even

* Read at the Obstetrical Section of the Royal Society of Medicine, April 7th, 1908.

followed any injurious occupation: The cause of the death of the fœtus therefore remained a mystery. She was treated with small doses of chlorate of potash, and was lost sight of for nearly two years.

In July, 1905, she again presented herself at the Waterloo Hospital. She stated that she had been delivered of a dead child at the end of eight lunar months' gestation in 1904, and of another dead child at the end of nine lunar months' gestation in March, 1905. In her last pregnancy she had felt fœtal movements a few days before delivery. There had been no return of menstruation since the birth of the last child.

On examination she was found to be two months pregnant. Nothing more was seen of her until June, 1906, when she returned to the Hospital and told us that she had been delivered of a dead child after nine lunar months' gestation. She was not certain when she last felt fœtal movements. She was once more pregnant, and Dr. WILLIAMSON impressed upon her the importance of allowing us to keep her under observation and to induce labour at about the 32nd week. He saw her on September 2nd, and from the size of the uterus thought she was then in the 30th week of pregnancy. Fœtal movements were felt, and the fœtal heart was heard. He recommended her for admission to Queen Charlotte's Hospital with a view to induction of labour. She was admitted on September 21st, and was found to be in labour. The child was still-born. It presented by the breech and was macerated.

The *post mortem* notes state that the child was premature, presumably of about 35 weeks' gestation, macerated but not foul-smelling. The centre of ossification of the lower epiphysis of the femur had not appeared. Unfortunately the placenta had been destroyed, and was not available for examination. Dr. HOLLAND, working with the silver method, examined sections of the liver, the spleen and the umbilical cord for the presence of the spirochæta pallida. He recorded his results as follows:—

Liver. Spirochæta are distributed throughout the whole section more or less uniformly, but in certain small areas are grouped very closely together. Whether these areas correspond to the site of blood-vessels it is difficult to say, for the method employed does not admit of clear differentiation of the tissues. In the midst of some of these areas, however, the presence of red blood corpuscles lying in small spaces affords evidence in support of this supposition. The organisms are not intra-cellular but lie between the cells in the connective tissue or lymph spaces. The spirochætæ themselves have been cut at different planes and angles. Some are typical with as many as fifteen or twenty spirals, others are shorter, whilst some have evidently been cut at the summit of the curves

and appear as a series of dots. The apparent grouping of the spirochætes around the blood-vessels of the liver does not justify us in assuming that the infection is primarily placental and reaches the foetus through the umbilical vessels. It must be remembered that all the blood of the foetal circulation passes through the liver, and the presence of spirochætes in or around the hepatic capillaries is not surprising.

Spleen. The sections show spirochætes in the same abundance as those of the liver, but they are distributed more uniformly, and there are no "clumps" as in the latter organ.

Umbilical Cord. No spirochætes can be detected in the sections.

The evidence obtained from the study of the dead foetus appeared to prove conclusively the presence of a syphilitic infection even in the absence of any clinical manifestations of syphilis and in spite of a negative history. In the light of our new knowledge we investigated the case again. We interviewed and carefully examined the husband, and once more made a thorough examination of the wife. We failed, however, to find any single fact, either in the history or the clinical examination which we could regard as even suspicious. In the event of a fresh pregnancy we determined to try the effect of a course of treatment by mercury and iodide of potassium. We had not long to wait. In May, 1907, the patient returned to the hospital. She stated that she had seen no periods since the birth of the child, but she believed she was again pregnant. On examination this proved to be true. She was ordered small doses of mercury and iodide of potassium, and this treatment was continued up to the time of the delivery. The stage of gestation could be judged only by the size of the uterus as we had no menstrual history to help us. When examined on October 17th the uterus reached to the costal margin, and the foetal heart could be heard. She was therefore sent into Queen Charlotte's Hospital with a view to induction of premature labour. On November 1st she was admitted under DR. STABB, and on the following day labour was induced by the introduction of two bougies. Sixteen hours later pains commenced, and at 11 p. m. on November 3rd she was delivered of living twins—a boy and a girl. The male weighed 3 lbs. 11½ ozs., the female 3 lbs. 3½ ozs. Both children were obviously premature, and the amniotic sac of the female child contained a large excess of liquor amnii. It was clear that we had miscalculated the stage of gestation and had induced labour much sooner than we ought to have done.

The female child died on the 5th day and the male child on the 9th day. *Post mortem* examinations were made in both cases. In the female child no cause of death beyond prematurity could be discovered. In the male child there was collapse and bronchopneumonia of both lungs.

Neither showed any syphilitic lesion. The liver, spleen, the lungs and the kidney of the female child were examined by the silver method for the presence of the spirochæta pallida. In none of these organs could it be detected.

The result is disappointing. We were misled by the existence of twin-pregnancy and hydramnios into believing that gestation had advanced nearly to full term, and the deaths of the children must be attributed to our unfortunate mistake.

We bring forward this case as a contribution towards the pathology of intra-uterine death. The importance of syphilis as a causal factor has long been recognized, but hitherto we have had to rely upon a history of infection in the parents, or upon certain gross lesions exhibited by them or by the dead foetus, and in the absence of such evidence proof has not been possible. *Levaditi's* method of demonstrating the spirochæta pallida has given us a new means of diagnosis and new indications for ante-natal treatment, but before the value of these can be established two questions must be discussed—(1) What is the evidence upon which it is claimed that the spirochæta pallida is the specific organism of syphilis? and (2) Is the method of *Levaditi* a reliable one for demonstrating the presence of the organism?

In March, 1905, SCHAUDINN discovered in scrapings from an excised primary chancre a distinctive spirochæte; this he named the "Spirochæta Pallida," because, in comparison with other spirochætes, it stained only faintly with GIEMSA'S stain. Further observations revealed to him the fact that this organism was constantly present in cases of primary and secondary syphilis. Later, SCHAUDINN, working with HOFFMANN, found it in every one of 70 consecutive cases examined. He emphasized the fact that the frequency of its discovery in cases of syphilis depended directly on the skill and experience of the observer—an observation that has been amply confirmed by later workers. As a result of his work, SCHAUDINN claimed that the spirochæta pallida (or, as he named it later, the *treponema pallida*) was the specific micro-organism of syphilis.

The spirochæta pallida is usually 10—15" in length. It is spiral and contains 8 to 12 sharp regular curves. It may sometimes attain a much greater length and contain a correspondingly larger number of curves. It tapers slightly towards the extremities, the curves becoming less steep. It possesses one flagellum at each extremity; it multiplies by longitudinal fission, the initial stage being shown by a doubling of the flagellum at one extremity. There is no undulating membrane. Whether it is a protozoon or a bacterium is not yet quite settled. SCHAUDINN

believed it to be a protozoon. It is stained best in films by GIEMSA'S stain. The spirochaetes belong to a large and widely distributed class of organisms. SCHAUDINN believed the spirochaeta pallida to possess morphological characteristics by which it could be distinguished from other members of the group; but we now know that there exist certain spirochaetes which, by the ordinary staining methods, cannot with certainty be distinguished from the pallida. Notable amongst these is the spirochaeta pertenuis, described by CASTELLANI as the infective agent in yaws.

The spirochaeta refringens is by far the commonest of the class; it is often found in the mouth, and most frequently when carious teeth are present. The refringens is a thicker and plumper organism than the pallida; its curves are less numerous, flatter, and irregular in length and form; its ends are often blunt. Other spirochaetes have been found in necrotic and ulcerating carcinomata and in balanitis.

Confirmation of SCHAUDINN'S work quickly came from all sides, and soon a vast amount of literature was produced, dealing chiefly with the association of the spirochaeta pallida with primary and secondary syphilitic lesions; and the evidence adduced plainly demonstrated the constant association of the organism with this disease. Still further proof of the pathogenicity of the spirochaeta pallida was given by the result of inoculation experiments in animals. In May, 1905, METCHNIKOFF and ROUX were able to find the organism in the primary lesions of apes inoculated with syphilis, and, in November of the same year, as the result of further work, they were able to find it in 74 per cent. of the infected animals, both in the primary and secondary lesions. NEISSER could not at first find it so often in his infected apes, but later, as the result of increased experience in searching for the organism, was able to find it in a much greater per centage of cases, in the primary lesions and secondary eruptions, but was never able to find it in the internal organs.

So far the organism had been demonstrated only in smear preparations, stained best with GIEMSA'S stain. Attempts to stain it in sections were unsuccessful until LEVADITI, in 1906, introduced a method of silver nitrate staining. This was essentially a modification of RAMON-Y-CAJAL'S method of staining nerve-fibrils. This is the method we have employed ourselves, and we propose to give a short description of it.

Thin pieces of tissue must be taken. They are first placed in a 5 per cent. solution of formalin in distilled water for 24 hours. They are then placed in distilled water until they sink; next they are transferred to 90 per cent. alcohol for 24 hours. They are then again rapidly washed and placed in a 1.5 per cent. solution of silver nitrate in distilled water, and

kept in an incubator at 37° C. in the dark for 5 or 6 days. They are then rapidly washed in distilled water, and are developed, still in the dark, for 24 hours at the room-temperature in the following solution:—

Pyrogallie acid	..	..	2 gms.
Formalin	..	..	5 cc.
Distilled water	..	..	100 cc.

After this they are again washed, hardened in alcohol, cleared in xylol, and embedded in paraffin. Thin sections are cut, and are mounted for examination. The spirochaetæ are stained black, connective-tissue fibres dark brown, and protoplasm dark yellow. The great essentials for success are that scrupulous cleanliness should be observed, and that the silvering and development should be carried out in the dark. LEVADITI'S method especially lends itself to the examination of the organs of syphilitic foetuses. In addition to the case just recorded, we have examined at Queen Charlotte's Hospital the organs of seven macerated foetuses, and have found the spirochaete in great abundance in six. Of these, in five there was a history of syphilis in the parents: in the single negative case there was no such history. The organs examined were the liver, spleen, kidneys and lung, and the spirochaete was present in each case in all these organs, but most abundantly of all in the liver and lung. In the placenta we could never find it. BAB, who has examined a large amount of material in very great detail, found the spirochaete in the various organs in the following proportions: lung 87 per cent., pancreas 80 per cent., skin 66 per cent., suprarenal 64 per cent., spleen 62 per cent., liver 59 per cent., kidney 54 per cent. He found it in the umbilical cord in 9 per cent., but never in the placenta.

The spirochaetes lie chiefly between the cells of the organ in the connective-tissue. They may lie within the cells. BAB has found them in the ovum; GIERKER found them abundantly in the epithelium of the bronchioles, and LEVADITI found them within leucocytes. LEVADITI and many other observers also found them lying within blood and lymph spaces.

The constant presence of the spirochaeta pallida in the organs of congenitally syphilitic foetuses, and the absence of all other organisms, is a remarkably strong piece of evidence for the specificity of the spirochaeta pallida as the infective agent in syphilis.

In 1906, SAHLING, an assistant at the Zoological Institute of Berlin, published a remarkable paper, in which he attempted to show that LEVADITI'S method was utterly worthless for the demonstration of the

spirochæta pallida, and that the so-called "silver-spirochætes" were not spirochætes at all, but merely fine nerve-endings, elastic and other connective-tissue fibres. He asserted also that although silver-sections of organs of these foetuses showed swarms of spirochætes, yet if smear preparations of the same organs were taken and stained with GIESMA'S stain no spirochætes could be seen.

To exclude any possibility of syphilis in the material used, he took pieces of tissue from the organs of various animals, including bears, pigs, monkeys, guinea-pigs, and rabbits. In sections from lung, liver, blood-vessels and other organs, stained by LEVADITI'S method he demonstrated fine spirals which sometimes resembled in appearance the spirochæta pallida. He supposed that these nerve and connective-tissue fibres had assumed a spiral shape because of their treatment with formalin and alcohol, and that the coiling was all the more marked if the tissues had previously undergone maceration, whereby they were rendered more permeable to the silver salt. To demonstrate his views he published with the paper a number of micro-photographs.

On looking at these micro-photographs, and comparing them with silver sections from the organs of syphilitic foetuses, it is obvious that SAHLING has gone too far. Doubtless, at isolated points in his sections silver spirals are seen somewhat similar in appearance to the spirochæta pallida, but there is a very marked difference between these spiral fibres, irregular in their size, and in the number and in the degree of their curves, and the true spirochæta pallida. No one acquainted with the spirochæta can have the least difficulty in distinguishing the two. Further, it is one thing to find two or three spirochæte-like fibres after a careful search, but a totally different thing to find the whole field swarming with spirals, all of which have the regular and typical appearance of the organism. SAHLING has subsequently published other papers on the same lines, but they introduce no new matter, and are chiefly controversial in reply to his critics.

Similar papers have been published by other workers at the Zoological Institute of Berlin; in fact, the workers at this institute, SIEGEL, SAHLING, SCHULTZE, and JANCKE, are the most bitter and persistent opponents of the spirochæta pallida. SIEGEL claims to have discovered the specific organism for syphilis, in the *Cytorrhya luis*, and the attacks of this school upon the specificity of the spirochæta pallida seem but part of a plan of campaign to establish the claim of the *Cytorrhya*.

SAHLING'S work has met with severe criticism.

NEISSER, whose opinion is an extremely weighty one, holds that the spirochæta pallida is certainly the cause of syphilis; he disagrees

entirely with SAHLING'S work, and maintains that the spirochæta stained by LEVADITI'S method is the same as that stained in films by GIESMA'S method.

DOHI has examined a large amount of material to elucidate the point raised by SAHLING concerning the influence of maceration in producing so-called silver-spirochætes. His conclusions are:—(1) in macerated non-syphilitic foetuses no spirochætes were found; (2) in artificially macerated non-syphilitic tissues from foetuses, monkeys and guinea-pigs, no spirochætes were found; (3) silver-stained nerve-fibrils and connective-tissue fibres may be easily distinguished from the spirochæta pallida by their blunt and irregular curves, variations in size and form, and by their brown colour. He admits that in isolated instances a silver-stained fibre may closely simulate a spirochæta pallida.

To several observers sections stained by LEVADITI'S method have revealed an intra-cellular position of the spirochæte—a strong argument against SAHLING'S views. GIERKE, in a syphilitic foetus, found them lying abundantly within the epithelium of the bronchioles and within leucocytes in the lung alveoli. LEVADITI and BAB have published similar observations.

SAHLING'S assertion that the spirochæte could not be found in GIESMA films from organs in which it had been found in silver section has been refuted by many observers. MUHLENS examined the organs of sixteen syphilitic foetuses and in all of them he found the spirochæte both in silver sections and in films. BEITZKE has confirmed his results. Care is necessary to find spirochætes in films made from macerated organs, for the organisms seem to adhere very closely to the tissues, perhaps because of their corkscrew form, and maceration interferes with their staining affinity.

These are but a few instances of the results of workers on this point. The amount of literature is enormous, and in reading through it one finds a consensus of opinion that SAHLING'S view of the worthlessness of LEVADITI'S method is wrong. At the same time, it is generally admitted that in sections where only a few spirochætes are present, or where they have been badly stained, care must be taken to distinguish the spirochæte from nerve-endings or deformed connective-tissue fibres. But in sections containing many typical spirochætes there can never be any doubt.

We have thought it right, in view of the importance of the case we have recorded, to consider in some detail (1) the evidence upon which

it is claimed that the spirochæta pallida is the specific organism of syphilis; and (2) the reliability of the method of LEVADITI in demonstrating the organism.

The opinions we have formed are:—(1) that all the evidence accumulated points to the fact that spirochæta pallida is to be regarded as the specific organism of syphilis, but that positive proof can only be obtained when some method of growing the spirochæte in pure culture has been discovered; (2) that in spite of the fierce criticism to which it has been subjected by SAHLING and his followers, LEVADITI'S method is still to be regarded as reliable for demonstrating the organism.

We believe, therefore, that in the routine examination of the tissues of premature still-born children we have valuable method of elucidating the cause of intra-uterine death in certain obscure cases, and that we may be afforded a clue to a line of treatment by which we may prevent the recurrence of such a disaster.—*Journal of Obstetrics & Gynecology*.

THERAPEUTICS.

Subnitrate of Bismuth in Diseases of the Stomach.

THE *Archives des Maladies de l'Appareil digestif* contain a full account, by GASTON LION, of the use of bismuth for diseases of the stomach. He insists upon the use of a very pure preparation in order to avoid toxic symptoms. The heavy subnitrate is to be preferred to the light, because the latter very often contains impurities, such as the carbonate or the oxides. Chemically pure subnitrate is harmless, as much as 80 grms. (3xx.) having been taken daily. Its use is indicated in gastric pain, whatever may be the cause, and is equally successful in hypopepsia, aepsia, and hyperpepsia. It soothes gastric pains of all sorts, but is ineffective in those due to nervous dyspepsia. The sedative effects are produced from the second to the sixth day. In simple ulcer, it relieves pain and hastens healing. In cancer of the stomach, only temporary relief is afforded. In bleeding from the stomach, LION confirms the good effects already noted by MOUNERET and FLEINER. It acts as an antiseptic in abnormal fermentations. There is only one contra-indication to the use of bismuth in large doses, which is when, in some part of the alimentary canal, stenosis exists. In these cases, bismuth accumulates behind the obstruction forming a concretion with the mucus. If used in cases presenting only a slight degree of stenosis, it must be given in small doses, and be watched very carefully. Constipation is no bar to its use, for large doses make the motions more regular, and may even produce diarrhoea. LION is of opinion that it has a double action on the stomach; physically, by

coating the mucous membrane, and thus shielding the glands and nerve endings from the more or less irritating effects of the gastric contents, ulcers being protected in the same way and healing promoted. Chemically, many believe that the salt is not acted upon by the gastric juice, but LION, as the result of clinical examinations of gastric chemistry, has come to the opposite conclusion. He finds that bismuth, taken either before or with a test-meal, lessens hyperchlorhydria, decreases the pepsine, and reduces the energetic action of the process of digestion. When it is taken with a meal, digestion goes on more quickly, and the stomach empties itself in a shorter time. Bismuth has no direct action upon secretion.

It may be given in the morning, after lavage, in a dose of ʒiiss. to ʒv. suspended in ʒvj. to ʒviij. of water. The patient should then lie down on the side corresponding with the presumed site of the lesion. When the protective action of bismuth is wanted, the dose should be given when the stomach is empty, and may be administered by the mouth. By giving a large dose five or six hours after a meal, the contents of the stomach are changed into a solution which is, though acid, not irritant, and the stomach then empties itself with ease.—*The Practitioner*.

The Influence of Sodium Chloride Injections upon the Action of Chloroform Narcosis.

BURCKHARDT (*Archiv für Klinische Chirurgie*) has demonstrated, by a series of experiments and clinical observations, that an injection of physiological serum previous to administration of the anæsthetic diminishes the toxicity of chloroform, which is less easily absorbed by the blood, and on this account the blood pressure remains very near normal. In addition to this, the classical phenomena following chloroform narcosis are reduced in a large measure. The blood pressure remaining high the narcotic is rapidly eliminated by the lungs. At the Würzburg clinic all the patients who had to undergo major operations for the last few months have received an injection of 1,500 to 2,000 c.cm. of physiological serum fifteen or thirty minutes before the administration of chloroform. It is given preferably by the veins, with the assistance of local anæsthesia. So far, following the operations there has not been observed excessive hæmorrhage or any other trouble. These injections are thought especially to be indicated in cases where the heart is feeble, the kidneys abnormal, or when the percentage of hæmoglobin is reduced, and also when major operations are to be done in the urinary domain.—*New York Medical Journal*.

The Lime and The Lemon.

The *Lancet* of March 28th discusses the relative advantages of these popular fruits in the form of a beverage, and points out that according to an analysis made recently it would appear that the lime, although smaller than the lemon, yields, weight for weight, a good deal more juice. Thus the average amount of juice expressed from a lemon was 37.50 per cent. of its weight, whereas the lime gave 59 per cent. Moreover, the lime gives more citric acid but less sugar, as the following analyses show:—

The juice of The juice of
the lemon. the lime.

Total solid matters.	8.80 per cent.	8.64 per cent
Sugar	2.30 "	0.70 "
Citric acid.	4.57 "	5.60 "
Mineral matter	0.35 "	0.35 "
Potash	0.15 "	0.12 "
Phosphoric acid (soluble)	0.010 "	0.065 "

The lime, therefore, yields a "drier" juice and contains a third of the quantity of sugar present in the lemon. The antiscorbutic properties of lime juice may be regarded as more marked than those possessed by the juice of the lemon. While the alkaline salts amount to practically the same in both fruits, yet the phosphoric acid is greater in the lime than in the lemon. It is probably owing to the richness in alkaline salts that the use of lemon juice, as well as other fruit juices, is helpful in some diseases of the skin and in preventing eczema.—*The Therapist*.

THE ANTISEPTIC.

JULY, 1908.

Public Health in Municipal Areas.

IN Municipal areas large aggregates of population live, move and have their being. Various are the needs of urban populations. The preservation of their health is one of the most sacred of the responsibilities cast upon Municipal bodies. If the origin of Municipal government is carefully traced and examined, it will be found that, in several countries, the immediate or original purpose for which it was created and maintained was the preservation and promotion of public health. When large masses of people move on or collect together, the one question of supreme concern is, or ought to be, their health. Even today, in India, at festivals, fairs and places of pilgrimage, the matter which often engages the attention of the authorities has reference to the prevention of the outbreak of epidemics and the preservation of health. When armies go on long and laborious campaigns, far more important than their discipline or other conditions necessary to success in warfare, is their health, for the protection of which no expenditure is deemed too heavy. Peace and civilisation have brought in their train manifold blessings. But these blessings are made enjoyable in proportion to the success which has been attained in the effort to preserve individual and public health. European countries are less affected by the ravages of epidemics than are the countries of Asia and Africa and parts of America. Large and teeming populations like those of London live in health and comfort from year's end to year's end without any epidemics making dire inroads on them. With its millions of human beings, following a large multiplicity of trades and professions which involve danger to life and health, and with society cut up into so many ranks, compared with the towns and cities of Asia, London may be said to be free from those periodic outbreaks of fell diseases which play such havoc in Eastern cities. We have not the statistics before us. But we may affirm, without fear of contradiction, that the death-rate in the cities and towns of Western Europe per thousand is nothing at all in comparison with that of many of the towns and cities in Asia. For instance, the death-rate in a city like Madras has

startled a Ceylon critic, although we here regard it as the commonest of things. If the rate of mortality in towns and cities in Europe is less than what it is in Asia, the reason of it is not far to seek. We are not speaking of extraordinary conditions such as, for instance, a famine of widespread severity, with its attendant horrors and squalor, would give rise to. We refer to normal conditions, and yet we find that the mortality is heavier in Asiatic towns and cities than in European countries. It is not because Asiatic populations are born with a double dose of original sin, nor can it be that their natural power of resistance to disease is less developed, even making allowance for the comparative poverty of Asiatic countries. In our judgment one of the fruitful causes of disease in the East is the want of organised activity among us to provide against or repel the attacks of the human foe. In times when the population was thinly scattered, and when there were no free and easy means of communication for the inhabitants of one locality to move on, either in a mass or in groups, for purposes of pleasure or business, to another locality, there was not, perhaps, the same necessity for the prompt adoption of precautionary measures for the prevention of diseases. But the same cannot be said of many of the Asiatic countries to-day, least of all of India, which has now over 30,000 miles of railway alone, besides other means of transport and good and well-kept roads. If freer means of communication, such as railways, steamships and good roads, generally distribute and diffuse the good things of civilisation, occasionally they bring evils also in their train. Who can say that the outbreak and spread of plague in India were not due to this cause? It, therefore, becomes a matter of vital importance that in view to the prevention of the outbreak of diseases, organised efforts must be made by the enlightened sections of all communities, and the Indian Municipalities are among our organisations existing for the deliberate purpose of protecting and promoting communal and public health and offering every reasonable facility and encouragement to individuals to do everything in their power to keep good health, not merely on their own account, but in the interests of the community as a whole. But it is a sad truth that we have not yet attained to that state of efficiency which is so marked a feature of Municipal institutions in the West.

It is not our purpose here to enumerate the causes which have operated to arrest the growth of Municipal organisations and free Municipal activity. We are here concerned with public health, and if public health in Municipal areas is not to-day what it ought to be, the people concerned cannot be entirely free from blame. What most people living in Municipal areas care for is the provision of what are called the

necessaries of life. If, for instance, they get plenty of water for daily consumption, they are profoundly satisfied. But very few, or none at all, spend a moment's thought upon the quality of the water they use. If so much of ignorance or lack of the spirit of enquiry prevails with respect to the prime necessities of existence, what must be the ignorance or indifference with regard to other matters upon which little thought is bestowed, can be better imagined. But most people have a very poor knowledge of the necessities of life. What is now generally regarded as not falling under them often is a necessity of existence. Good sanitation, efficient conservancy arrangements, proper ventilation, roomy houses, wholesome supply of the articles of food, open spaces in crowded parts, clean clothing, pure water, wide streets, good roads, recreation grounds, healthy pleasure resorts and a number of other things which will readily occur to any one who knows anything about town life are so many links that form the chain of health of a city or town. But it often happens that little or no attention is bestowed upon these questions either by the inhabitants themselves or by those who profess to represent their interests on Municipal bodies. There is no greater blessing than perfect health, but as long as this condition of perfect health lasts, there is no blessing that is so little appreciated by its possessor. Wealth, power, ambition, and pleasure without it are but Dead Sea fruit. When a person is in good health, there is nothing to direct his attention to the fact or to himself. It is a negative condition. Every organ works automatically, and the functions of the human frame are performed harmoniously, and, of course, unperceived by organs often beyond the control of the individual himself. But when there is, as the phrase goes, 'a screw loose,' and when a deviation from health takes place either by the feeling of pain or of incipient disease with its concomitant train of unpleasant symptoms, we begin to realise the truth that life has lost some of its zest, that the different organs are not in touch with one another, and that there is something wrong somewhere. If all this is true of the individual suddenly struck down by some cruel malady, it is equally true of a community or a mass of people congregated together and living within a limited area. So long as diseases carry off their victims unperceived and without noise, very few care to examine into the conditions amidst which they live. Very few will scrutinise the mortality list and institute a comparative examination of the death rates of different countries. How many persons in Madras, we ask, care to scan the weekly deaths and births roll published in the local newspapers? And yet that list has a direct bearing on the present and future of this city. The poet tells us that "Reason's whole pleasure, all the joys of sense, lie in three words—health, peace, and

communal health. We should think that the time has come when no man should be returned as a member of a Municipality or local body who does not evince a keen and practical interest in questions of public health and sanitation, and who does not study the subject with care and concern. Life and its activities are becoming more and more complex, and population is multiplying. But the increase of population can be a source of strength, energy and power only if the individuals who constitute it are healthy and strong and are able to undertake and discharge the duties and responsibilities of life efficiently. What is called social efficiency and capacity for action is a result of clear brains, healthy muscle, and strong bones, all in their proper places, working harmoniously and smoothly. Danger to personal and public health lurks most where large numbers of human beings live side by side with one another—in what we call Municipal areas—and hence it is that we have thought it necessary to call attention to this problem of public health in Municipal areas.

CORRESPONDENCE.

Designation of Medical Men in India.

SIR,

The designations of medical men in India are unique. These cannot be found in the nomenclature of any civilized country in the world.

First of all our patrons, the I. M. S. Officers, in the days of the East India Company, were designated as "Hospital Mates," afterwards as "Assistant Surgeons," again the composite titles of "Surgeon-Lieutenant," &c., were given to them, and now their designations and titles begin with "Lieutenant, I. M. S." Our I. M. S. Officers had to fight for these official titles and designations since a long time, and I am glad they have been successful, for it adds more dignity to a very noble and dignified profession.

The designation of the present "Military Assistant Surgeon" class previously was "Passed Hospital Apprentice" to begin with; subsequently it was "Sub-Assistant Apothecary," "Assistant Apothecary," "Apothecary," and finally it went up to "Senior - Apothecary." These designations did not represent the nature of the work expected of them. But thanks to the Royal Warrant of 12th March, 1894, by which their designation was altered by one stroke of the pen to "Assistant Surgeon I. S. M. D.," although then they had a three years' course of study

and training in a Medical College. This change represents their position and knowledge, and gives a deserving social status to this class of medical men.

The "Civil Assistant Surgeon" class who were formerly designated as "Sub-Assistant Surgeons" are now called "Assistant Surgeons," although they are all medical graduates with University degrees. They truly deserve the title of "Civil Surgeon" at start.

Turning to the "Hospital Assistant" class, one finds no change in their designation during the past 30 years or more, although their standards of general education and professional qualifications have been considerably raised and improved from time to time. The Medical Schools in India are under the superintendence of I. M. S. Officers, assisted by a number of able medical graduates, as the Medical Schools in Britain are provided with a staff of Professors. The Hospital Assistants are now Matriculates of a University and undergo a four years' course of medical training in a recognized Medical School and pass a final examination by a Board of Examiners consisting of I. M. S. Officers appointed by Government. Sir William Moore, the eminent Surgeon-General of Bombay, had recommended to Government to change the designation of Hospital Assistant to that of "Sub-Assistant Surgeon" years ago. In 1894 a note was published in an issue of the *Indian Medical Record* to the effect that Dr. A. Hilson, the then Inspector-General of Civil Hospitals in Bengal, had recommended to the Bengal Government to sanction 4 years' medical training to Hospital Assistants and to give them the designation of "Sub-Assistant Surgeon." Such conditions now exist in every Medical School in India; and yet our benign Government has not yet been pleased to grant even a suitable and deserving designation which was recommended by responsible Heads of the Medical Department years ago. A large number of Hospital Assistants also prayed for the change of the present inadequate designation to any other suitable one, since some years, by submitting memorials to Government. Nothing has yet been done even to this.

When a change of designation was already sanctioned to all the higher branches of the Medical Service as pointed out above, it is now time to grant a suitable and deserving designation to the Hospital Assistant class also. Have not the Hospital Assistants now a good claim for better designation, when their educational and professional standards have been considerably raised during these 30 years, almost equal to that of the Military Assistant Surgeon class? Some may ask:—What is there in a mere title or name? I say there is something in a name. It gives a prestige or status, particularly to a medical man in India.

What grieves an Hospital Assistant much is, that while a student of a Veterinary College in India who undergoes only a 3 years' course is turned out as "Graduate" (G. B. V. C.), a student of a Medical School in India who undergoes a 4 years' course is not allowed to be called a Diplomate (D. M. S.) or Licentiate (L. S. M.) as is the case in all civilized countries.

Previously Government permitted qualified Hospital Assistants to study in the Medical College at State expense to qualify for higher degrees. When this benevolent rule was in force many Hospital Assistants succeeded in obtaining the University Medical degrees, including the M.D. degree. Now no such privilege or facility exists for the Hospital Assistant class.

Be this as it may. The Hospital Assistants in independent charges of Dispensaries and Hospitals in India doing the work of Civil Surgeons in the Mofussil, singly and without help very often, keenly and seriously feel the indignity of the meaningless and inadequate designation "Hospital Assistant." If they are designated as "Deputy Surgeons" or "Sub-Assistant Surgeons," at least this will not only represent the real work they do, but it will also give them a suitable social status which is very desirable in these days of progress and enlightenment.

'FAIR PLAY.'

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Original Articles.

* SOME REMARKS ON THE HISTORY OF MEDICAL BATHING.

BY

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O the use of baths medicinally, allusion is frequently made in Greek mythology. HOMER speaks of ANDROMACHE preparing the bath of HECTOR, and PENELOPE'S use of baths and unguents to allay the melancholy which her husband's prolonged absence caused her. Again, mention is made of the weary HERCULES being refreshed and strengthened at Thermopylae's springs by MINERVA. At a remote period, the beneficial effect of warm bathing on old people suffering from what we now call "Anno Domini" was recognized.

ULYSSES returning from Ithaca found his aged father LAERTES in a condition of great weakness, and we are told, he advised warm bathing and spoke of one who, worn out and emaciated by age, by the use of baths regained health and appetite. Such was common custom among old men—*Odyssey, XXIV.*

HIPPOCRATES mentioned the use of warm baths in fevers, and mentions the use of hot springs and of watery and balsamic vapours. PLATO refers to the value of baths in various diseases.

Sulphurous baths were advised by ARETAEUS for the cure of melancholy and leprosy; this writer was the first to recommend the exclusion of the

* Specially contributed to *The Antiseptic*.

head in vapour baths—a valuable observation. Cold baths in the treatment of fevers were recommended by GALEN and CELCIUS, the former emphasizing their value in the combating of hyperpyrexia. Subsequent writers such as PONTUS ARGINETA (celebrated as a physician in the 7th century) and ORIBASIVS developed the theory of balneotherapy and extended its use.

By the use of pure water in the treatment of malignant dysentery in Holland, in the 17th century, VAN DER HEYDEN foreshadowed the methods which became systematised, early in the XIXth century, by PRIESSNITZ and others under the term "Hydropathy"—signifying the treatment of disease by the inward and outward applications of water. In 1702 SIR JOHN FLOYER, a Lichfield physician published his "History of Cold-bathing—both Ancient and Modern" which ran through no less than six editions within a few years and was translated into German by DR. J. S. HAHN of Silesia, who was himself a strong advocate of the hydropathic treatment of small-pox—at that period such a scourage.

In the year 1847 the worthy JOHN WESLEY, founder of the Methodist connection, published a small treatise entitled "Primitive Physic" which gives evidence of the existence at that early period of a very considerable acquaintance with the remedial and hygienic value of water. All the measures recommended by WESLEY he declares he found useful and curative among the people with whom his evangelistic work brought him in contact. Such varied ailments as ague, apoplexy, cholera morbus, and mania were dealt with, and cold-water baths or applications were used in the vast majority of cases.

Even so great an authority as DR. KELLOG remarks at the present day: "One cannot help noting the sagacity and wisdom displayed in many of the recommendations, which in many instances could scarcely be improved upon in modern times, and which certainly evince extended and accurate observation of the effect of hydriatic procedures."

DR. CURRIE of Liverpool, further published in 1797 "Medical Reports on the Effect of Water, Cold and Warm, as a Remedy in Fevers and Other Diseases." This was also a highly popular manual, placing the subject on a more scientific basis, and was also translated into German. Meantime much enthusiasm has been evoked among his countrymen by HOHN'S writing, and many societies were established to promote the medicinal and dietetic uses of water. BOERHAVE and HEBERDEN were both interested in this movement, and freely prescribed bathing of various kinds. In 1804 PROFESSOR OERTEL gave the water cure a fresh impetus by his unqualified commendation of water-drinking as a sovereign remedy for all

manner of diseases. The actual birth of systematic hydropathy, however, may be said to date from 1829, when VINCENZ PRIESSNITZ (1801-51) a farmer of Grafenberg in Silesia, began his public career on the paternal homestead, which he enlarged to accommodate the numerous patients attracted by the fame of his cures. To him, pure empiricist though he was, is unquestionably due the credit of formulating a complete system of hydropathy. Among people of every rank whom he attracted to Grafenberg were numerous medical men, some being drawn by curiosity, others by thirst for knowledge, but the major portion by a hope of a cure for ailments which had as yet proved unyielding to drugs. Records of experiences at Grafenberg were published, some enthusiastic in their estimates of PRIESSNITZ'S genius and acumen, and all more or less substantiating his claims. These constitute the only available account of his work and practice, for PRIESSNITZ himself never expressed his views in writing.

In 1840 hydropathy, in the guise of the PRIESSNITZ system, was brought back to England and popularised by a Captain CLARIDGE, whose book "The Cold Water Cure" passed through nineteen editions in as many months. He further delivered popular lectures on the subject, and made numerous converts. DR. GULLY (the father of the late Speaker) and DRs. WILSON and EDWARD JOHNSON joined in the movement, and soon large establishments at Malvern and Ben Rhydding were filled to overflowing. The craze spread even to America, where large hydropathic "Sanitariums" were opened. The literature of this period of the water-cure is, as might be expected, somewhat polemical. The wildest optimism prevailed among the disciples of PRIESSNITZ; they firmly believed and asseverated that in water, and water alone, properly applied, existed a certain cure for all the ills that flesh is heir to. The innovation was a very natural reaction against the wholesale bleeding and purging which constituted the practice of the "allopathic" physicians of the time, but it was not to be expected that these more orthodox practitioners would welcome the movement or be readily converted. On the contrary the allopaths condemned the water-cure roundly, and regarded the hydropathists as crazy fools. The hydropathist heaped condemnation and abuse equally freely as the "Man of Blood" and pompous prescriber of "Blue Pills."

A wild period of controversy and antagonism ended in a legal prosecution. This resulted in a Royal Commission, which had the effect of rendering PRIESSNITZ and his system only more popular and favoured by the public than before. Hitherto some timidity had been manifested in employing the new method on enfeebled patients who were plainly seriously ill. The water-curiers had concerned themselves mainly with the more

robust types of *malades imaginaires* (as undoubtedly many of the cured ones were) and gouty folk who were in a condition to stand a very vigorous regimen and a severe "crisis" allowed to run its course without restriction.

A Derbyshire manufacturer, JOHN SMEDLEY of Lea, near Matlock, was the first to observe the need for an adaptation of the cure to the feebler folk and a tempering of the methods for "the shorn lamb." This worthy gentleman, melancholic and out of health, went to Ben Rhydding in 1852, and there, in his own person, "tholed his assize" of the cold water cure. He was fully impressed with its severities as well as its benefits by a six weeks' course, and returning cured, if chastened, to Matlock, there established and practised among his employees a milder form of hydrotherapy. Commencing with a mere cottage on the hillside he soon enlarged his borders and founded an establishment which was a counterpart of PRIESSNITZ's at Grafenberg. Modified as SMEDLEY's system was, his regime was severe enough, if one is to believe the accounts of those who experienced his treatment in their own persons. He unquestionably did a great deal of good to a large number of people and a good deal of harm to not a few, as must ever be the case when a quasi-medical free lance treats invalids indiscriminately, without having had the necessary medical training. There are many people still alive who will tell one most earnestly that they owe their lives to JOHN SMEDLEY and his system, and the huge and flourishing establishment which is now to be seen on the arena of SMEDLEY's early triumphs and failures bears eloquent and convincing testimony to there at least being "method in his madness" and suggests that there is something in "the water cure," be it hot or cold. Handicapped as hydrotherapy or hydrotherapy was for many years by the gross ignorance of the majority of its advocates, by their insane optimism and blatant self-advertisement, it has finally survived and emerged as a recognized and valued curative method. The founding of a School of Scientific Hydrotherapy by WINTERNITZ at Vienna has done much to establish it in its proper place in legitimate, if not entirely orthodox therapeutics, and elevated it far above the level of empiricism. It may be said with truth that to WINTERNITZ the medical profession owes nearly all that it has learnt of the scientific application of water in the cure of disease. He has developed hydrotherapy on scientific and physiological lines with truly remarkable results.

Beginning in 1862 with a small establishment at Kaltenleutgeben, with accommodation for only a score of patients, in 1896 he was dealing with no less than 2,000 invalids. A chair of Hydrotherapeutics was founded

in the University of Vienna to which he has been appointed, and a clinic established in this subject at the General Hospital.

This extraordinary man when seventeen years of age met with an accident resulting in numerous bruises and the fracture of two ribs, with such complications that the physicians who were called in gave him no hope of recovery. Being in this poor state PRIESSNITZ called to mind the benefit which he found the animals which he had treated by water applications had derived, and he forthwith determined to resort to the same remedy for himself. He applied wet compresses to the injured region, and at the same time drank water freely, with the result that—whether *post* or *propter hoc*—he was quite restored to health again very shortly. This happy issue made such a profound impression on his peasant mind that he resolved, so far as he was able, to make a complete investigation of the remedial powers of water, used internally and externally.

Guinea pigs had not at that time attained their present pre-eminence in experimental science, and PRIESSNITZ began his researches on two ordinary porkers. He fed one on hot and the other on cold foods, and on killing them later, made a thorough examination of their intestines, discovering, as he affirmed, that the gut of the animal fed on cold foods was contracted, pale, and of firm, resisting character, while the intestines of the pig fed on hot stuff were red and relaxed, and so friable as to be useless for the making of sausages.

The methods adopted by PRIESSNITZ were naturally crude in the extreme, but the working basis of his system was the production of perspiration and the subsequent application of cold water. Natural sagacity soon led him to discover how variously different people reacted to cold applications, and he soon made a practice of always noting carefully how each patient reacted to the first application and regulated his subsequent treatment of them accordingly. He succeeded in calling attention to the efficacy of various simple methods of applying water which had previously been quite unappreciated.

WINTERNITZ has demonstrated the importance of the primary action of water on the central nervous system and its secondary antithermic action in fevers, and how it can aid nature in combating toxæmia by stimulating the circulation and nervous system and aiding in the oxidation and elimination of toxic products. His doctrines are now almost universally accepted, and students, qualified and unqualified, have flocked to his clinics, while surgeons and orderlies in the Austrian army are regularly sent to him for training and instruction.

Other workers in the field have been BRAND of Berlin, JURGENSEN of Kiel, and LIEBERMEISTER of Basel, who between the years 1860 and 1870 employed the cooling bath in typhoid fever with results which were indeed striking. BARR, CALEY, and American physicians such as KISCH BARUCH and KELLOG have confirmed their observations more recently, and shown the extreme value of the cold bath in reducing the mortality of typhoid and the treatment of any hyperpyrexia. In 1843, SCOUTELLEN who was sent to Germany by MARSHALL SOULT to study the new treatment gave such favourable accounts of the method on his return that hydrotherapy soon got into favour with French Physicians and has so remained. CHARCOT was one of the best known exponents, using balneotherapy largely in his practice with the most happy results. There has, indeed, been a marked contrast between the type of hydropathist in France and Germany, for in the latter country the unqualified and empirical 'Water Doctor' has been the more common type. This is largely due to the influence at an earlier date of PRIESSNITZ, who popularised hydropathy in the teeth of the opposition of the medical profession. France has never been invaded by the water-quack, but hydrotherapeutic establishments have always been under the supervision of qualified physicians. Only in this way is it possible for the best results to be obtained, for, as will be shown in the following pages, water is far too powerful a therapeutic agent to be wielded by any one unfamiliar with physiology and unpossessed of the prolonged and arduous training through which the modern physician is required to pass.

*DAIRY AND DAIRY-FARMING IN MADRAS.

BY

G. KAMAKSHI ROW,

(*Veterinarian and Agriculturist.*)

Introductory.

India is an agricultural country, and her wealth consists of live-stock. Cow-keeping is an industry known to Indians from time immemorial. Especially to the Hindus it is a sacred duty to rear cows, and the Hindu Shastras also enjoin this as one of the religious ceremonies. It not only supplies them with live-stock for agricultural purposes, but also furnishes them with milk, curd and ghee which are required for religious purposes, and in short the cow is the object of veneration and worship to all Hindus.

* Specially contributed to *The Antiseptic*.

Dairy farming is an important industry, and is a very paying concern in large cities like Madras. But in Madras there are no large dairies with all the improved dairy appliances. The cow-herds (Gollas) are the only people who keep a small number of cows in their houses and supply milk and other dairy products to the people of Madras. The cows they maintain for this purpose are brought from Nellore. Local breeds are also available, but they are not largely used in dairy farming, for they are not so good as Nellore cows in yielding milk. At present these cows are not properly fed. The food they supply to them in many ways is useless. They never trouble themselves to grow any green food or prepare any fodder for them. The plant that supplies them with meals also feeds their cattle with straw. There are no pastures all round Madras. The cows are driven for grazing under the care of a cowherd whose occupation is tending cattle. These cows are penned in some places near the town till noon, and then allowed for grazing. These poor animals wander all over the saline areas which are found in the vicinity of Madras, lick the dust which is impregnated with the salts, and return home with the stomachs as empty as when they started and get at night a small quantity of bran and straw. For drinking, no pure water is provided. All the washings of the pulses and grains which are preserved in pots are supplied to them. When they are given to the cattle, they are in fully fermented state. The stalls in which they are kept are also dirty, and are not well-ventilated. The urine and dung are not removed then and there from the stalls. No litters are supplied, and the cows are allowed to lie down on the stall where the excrements are left uncleaned. They are not often washed. We see now and then a cow rubbing itself against a post. Irritation of the skin from the impurities also causes them to lick themselves—a habit which is injurious to the health of the animal. The selection of good milch-cows for dairying is a thing unknown to the dairymen of this place. They often buy cows by simply seeing the external appearances. These cows are sometimes suffer from hereditary diseases. The milk taken from such cows is dangerous to human beings. Thus milch-cows are ill-kept, ill-used and ill-managed. Besides this, the calves which are the future backbone of this industry, are not properly cared for. Every drop of milk is drawn from the cow and nothing is left to the calves. No artificial feeding is adopted here as in the civilised countries. Calves are nearly starved to death. In Madras they are the objects of pity. In this respect the policy adopted by them is suicidal not only to them but also to our agricultural country.

Such being the case, the health of the cattle, the food they take, the state of their sheds, the conditions of the milking utensils, are all the

matters of the closest supervision and importance. Upon the good management of the livestock of the dairy the dairyman's success depends. Harsh and cruel treatments should be recognised as decreasing the profits which any animal would produce ; for it is punishing the stock.

The suffering undergone by an animal involves a corresponding loss to the owner. Kind and careful treatment of the livestock is one of the foundation stones of good and profitable managements. Under proper management a cow may be expected to yield a large quantity of milk in the year, and the price of the animal will be increased.

The points marking good cows are :—(1) Cows should have well rounded and robust fine looking frames indicating a strong and vigorous constitution. (2) Milk vein must be prominent, and the teats should be long and large, and must be at equal distance and thick. (3) The udder should be large and deep, and should, after milk is drawn, shrink considerably. It may be large owing to its containing much fat, but it will not shrink much after milk is drawn. It should be long from front to back, stretching well up in the belly and broad behind, filling up the space between the legs. (4) The hip should not be narrow, for there would be less space for the womb than when these parts are level and wide, and therefore the calf in the womb cannot grow properly and so delivery may be also difficult. (5) The skin should be soft and elastic, and should move freely over the ribs when handled, but it should not be too loose and thin. (6) Spirit is important in a draught animal, but in cows, gentle disposition, a temper free from any vicious tricks and perfectly manageable on every occasion, are of great importance. For irritable cows are usually bad milkers. Therefore, the cow should be docile.

Some cows consume a large quantity of food and convert a great portion of it into milk, whereas others will convert the greater portion of their food into fats, and thus store it up in their bodies. Cows of this sort are not fit for dairy farming. Animals which are neither too old nor too young should be elected for this purpose.

*The Cow-House :—*It should be of a size adapted to the number of beasts. Each cow should be driven into the house at suckling time and her head confined in a proper manner. Put some fodder constantly before her, and there should be space between two beasts. When they become accustomed to this kind of restraint, they will, without any trouble, come into the place destined for them, and the calves may be suckled also with the greatest ease and facility.

*The Dairy :—*The dairy should be cool, airy, dry and free from vermin of all kinds. Cleanliness is of the most essential consequence in dairy

management, and, if not carefully looked after, may cause considerable loss. Milk, when drawn from a cow, must always be received in a perfectly clean vessel ; if not, it will be quickly spoiled. It is also very liable to take up bad odours and impurities as, for example, if the milk be kept in a room where there are onions it will acquire the taste of onions. In villages and towns it is generally heated in open pots over smoking bratties. So the milk acquires a disagreeable smoky flavour. In hot weather it is liable to turn sour very quickly. To avoid such consequences the milk should be kept in deep vessels and placed in a cool room which is well ventilated. The utensils of the dairy are very numerous. The vessels in which the milk is kept should be either of porcelain, glass or tin, as these are the most easily cleaned, and this must be done every day with boiling water and the vessel thus cleaned may be exposed to the sun after being washed. When the vessels are made out of wood they are to be washed also with boiling water with a little soda or lime dissolved in it. If the vessels are not cleaned when fresh milk is kept in them, it quickly turns sour and is spoiled.

*The Dairy Products .—*The dairy products are milk, cheese and butter, &c. Cheese-making is hardly done in India. Cows and buffaloes are chiefly maintained for the production of the milk and curd. Buffaloes have a tendency to have a large portion of solid fat. So in some places the milk of the buffalo is preferred to that of the cow. When milk is kept still in a vessel for some time, small particles of fat rise to the surface, and form a kind of yellowish scum there. This is cream, *i.e.*, the fat of milk. There are several methods to make cream. By churning the cream, butter may be obtained. Cream is placed in a churn, and agitated after a short time, an excess of liquid found in the churn is removed. Some fresh water is added, and churning is continued until butter takes a regular solid form. But it should be stopped when butter has a granular structure. If the cream is fresh, as is the case when the cream-separator is used, the cream should be ripened, that is, it should be kept for a short time and have a slightly sour taste. The butter thus made is good, and has less quantity of water. The indigenous process is, that the milk is boiled, and cooled and curdled. The whole is churned by means of a split bamboo, and cold water added at intervals. The butter is removed as it is produced. The butter thus obtained contains an excessive quantity of albuminous matter, and is usually too full of water. Butter must be washed thoroughly with perfectly pure water to remove the buttermilk. In every process, scrupulous cleanliness is necessary. The best time for making butter, during summer, is the early morning, before the sun is high. In our places the profit from cows and buffaloes is realised in the subsequent

manufacture out of milk. So the whole care and management of the articles rest with the housewife. In the department of rural economy a large amount of skill, frugality, cleanliness, industry and good management is required of the housewife; and without them the dairy farmer may be materially injured. In Madras the men who sell curd and ghee generally do not take much care in regard to cleanliness. The pots in which curd and butter are kept are not properly cleaned. They sometimes stink awfully; no dairy can be successful where cleanliness does not receive greater attention, and the absence of it is a source of great danger to the health of the people who depend upon the dairymen for their milk, ghee and curd.

Milking:—Cows are ordinarily milked twice a day at fixed hours. The act of milking is one which requires a great caution; for if not carefully and properly done, the quantity of milk will be diminished and the quality will be inferior. Cows should be soothed by mild usage, especially when young; for to a person whom they dislike they never give milk freely. The teats should always be cleanly washed before milking. The udder may become sore if the milk be allowed to accumulate in it long. It is a common practice among Hindus to leave a cow unmilked for a day or two about the Peria Pongal festival, and the result is the udder and teats suffer from sore. So it is well and good to allow the calf to strip the udder dry after the cow has been milked with the hand. To promote cleanliness in regard to milking, cows are, in some places, combed, brushed and clothed like horses. Where clean milk is an object, the using of the comb and brush and the washing of the udder are indispensable. So it will be well and good if a part of this refinement were adopted in all places where dairy-farming is in progress. According to MOWBRAY, snuff-takers and sluts are unfit to be dairy-women, and no milker should ever be suffered to enter the dairy in a dirty apron covered with hairs from the cow-house.

The following are the directions given to the dairymaid by an advanced agriculturist:—"Go to the cow-stall at 7 o'clock; take with you cold water and a sponge, and wash each cow's udder clean before milking; douse the udder well with cold water, winter and summer as it braces and repels heat. Keep your hands and arms clean. Milk each cow as dry as you can, morning and evening; and when you have milked each cow as you suppose dry, begin again with the cow that you first milked, and drip them, each; for, the principal reason of cows falling in their milk is from negligence in not milking each cow dry, particularly at the time when the calf is taken from the cow. Suffer no one to milk a

cow but yourself, and keep not gossiping in the stall. Every Saturday might give in an exact account of the quantity of milk each cow has given in the week." Such is the importance of cleanliness in dairy farming and dairy-products.

A milch-cow is in her prime at five years, and will generally continue in a good milking state till ten years old or upwards. But this depends, more or less, on the constitution of the animal. Some cows exhibit marks of old age much earlier than others. With regard to the treatment of the cows after calving, the following directions are useful, and run thus:—The cow should be left with the calf and should be allowed to lick the calf soon after it is born so as to remove the slime covering it, and the calf should be helped to stand up and suck its mother's milk. Sometimes it happens that the cow will not recognise her offspring, but on a small quantity of salt being thrown on it, to which all cattle are partial, she commences her motherly duties by licking the skin. Two or three hours afterwards it will be prudent sometimes to give an aperient drink consisting of Epsom Salt or ginger. This may tend to prevent milk fever and other diseases. Attention should be paid to the state of the udder. If the teats are sore and tender she should be gently and carefully milked twice or thrice daily. The milk which the cow gives for the first few days after calving is of a peculiar character, for it acts as a gentle purgative; therefore it is useful in clearing the bowels of the calf, which is necessary soon after it is born, and a recently calved cow should not be turned out for pasture in the summer season. Cake, dhall husk and cotton seed must not be given for a week after calving. But mash of 5 lbs. of boiled *Cambu* or rice with equal quantity of bran and two ounces of salt is the best food. Ration for a newly calved buffalo is 8 to 12 lbs. of good hay or 15 lbs. of green grass, 5 lbs. of bran, 5 lbs. of *Cambu* and two ounces of salt. Immediately after calving a hot drink made up of a thin gruel or congee of *Cambu* and rice with a good handful of salt tends to cause the after-birth come away quickly.

(To be continued.)

Our Contemporaries.

MEDICINE.

Lung Disease and Unequal Pupils.

Slight inequality of the pupils, temporary or permanent, is so common, even in health, that it may almost be regarded as a normal abnormality. Inequality sufficient to attract immediate attention is less common, though even that condition is occasionally observed in perfectly healthy

people. It is of interest, therefore, to note that the definite inequality of the pupils to which attention is often attracted in cases of lung disease is not a point from which any definite conclusions can be drawn. It may be said that this is an entirely negative point, and so it is; but negative points are often valuable things to know, for it is very unsatisfactory to be confronted with a well-marked clinical condition, and yet to be in doubt as to whether it "means anything" or not.

It has more than once been taught that a dilated pupil upon the same side as the abnormal lung signs is an indication of empyema as distinct from serous effusion. It becomes quite clear, however, from the statistics recorded by MASSOLONGO, SIGNORELLI, and others that the inequality of the pupils, though common enough in lung cases, is so inconstant in its behaviour that nothing definite can be deduced from the sign.

Taking all pleuro-pulmonary cases together, decided inequality of the pupils may be noted in about one-third. The incidence in different lung conditions may be briefly summarised as follows:—

			Per cent. of cases having unequal pupils.
Tuberculosis	}	..	40
Acute pneumonia			
Pleuritic effusion	..	..	25
Acute bronchitis	..	..	20
Emphysema	..	..	12
Chronic bronchitis	..	..	10

Where the lung disease is unilateral there seems to be no special tendency for the pupillary abnormality to be upon that side; nor do the pupillary symptoms throw any light upon the nature or source of the pulmonary disease, though upon the whole the more acute the lesion the more likely are the pupils to be unequal. The performance of paracentesis thoracis in cases of pleural effusion does not at once do away with the pupil differences, so that the latter do not even help in the difficult distinction between persistence of compressed lung on the one hand and re-accumulation of fluid upon the other. Sometimes the pupil upon the same side as the lung trouble is persistently smaller than the other; sometimes it is persistently larger; sometimes, again, one pupil is the smaller of the two one day, whereas it is the other way round the next.—*The Hospital.*

Theocin-Sodium Acetate in the Relief of Dropsy.

Theobromine is a vegetable alkaloid which is in organic chemical nomenclature, a di-methylxanthine. There are several different

dimethylxanthines: theocin is the name of one which is synthetically prepared. All the members of this class of drugs have a potent diuretic action. Theocin-sodium acetate is one which has commended itself very greatly in practical use.

It is chiefly for cardiac dropsy that it is employed. Acute renal dropsy is less likely to be thus treated, because with inflamed kidneys it is generally held that active diuretics are to be avoided. The kind of cardiac dropsy seems to matter little. It may be that of valvular heart disease, of myocardial degeneration, or of failure of the right side of the heart from chronic troubles in the lungs, or from arterio-sclerosis or granular kidney.

Two points which seem to have been fully established are: first, that theocin-sodium acetate acts very much better when the patient is having a digitalis preparation at the same time, particularly if the digitalis has been already administered for three or four days before the theocin salt is added; secondly, that patients are apt to become tolerant of the drug quickly, so that it is better administered periodically rather than continuously.

It might be thought that, since the benefit of digitalis itself is seldom fully marked until the fourth or fifth day after its administration has been begun, the good that has been attributed to the theocin salt when it has been started on that day is really due to the digitalis entirely. This, however, seems not to be the case. If similar patients are treated with digitalis only, with theocin-sodium acetate only, and with the two together, respectively, the best results follow the combination.

In a typical case the patient is put to bed, and 15 minims of standard tincture of digitalis are given four times a day, either in half an ounce of plain water or in a little dill water or chloroform water, but not in association with caffeine citrate, squills, nux vomica, or other similar drug.

It should be remembered that digitalis can be given in large doses without producing nausea or vomiting if it is given by itself, whereas the same doses administered with other medicines in the mixture along with it will again and again upset the stomach. Instead of the tincture, some authorities prefer to give the fresh infusion; it matters little which is used, provided that the chemist has ascertained that the preparation supplied is physiologically active.

When the digitalis has been continued in this way for three days theocin-sodium acetate is prescribed in 6-grain doses thrice daily. It is often added to the digitalis mixture, but if there is the slightest sign of

nausea it is much better to give the two at separate times, each in a simple excipient. Doses of 6 grains are usually sufficient, though 10 grains may be prescribed if necessary. The daily volume of urine voided will usually go up almost immediately, and within a fortnight the drops should have decreased very much. The theocin salt may or may not be omitted after this, digitalis being continued for a longer time according to the nature and the progress of the case.—*The Hospital*.

The Diagnosis of Phthisis.

SAMUEL GEE (*Clinical Aphorisms*).

1. Before the appearance of physical signs it is the presence of some or all of the following facts which leads to a diagnosis: Hæmoptysis, cough, loss of flesh and color, slight rise of temperature and hereditary liability to the disease; but, above all, the detection of tubercle bacilli in the sputum.

2. The absence of physical signs of disease in some cases of slowly progressive pulmonary consumption, ending in death, is more remarkable.

3. Tubercular phthisis going on to the formation of cavities is not extremely uncommon even in infants under a year old,

4. Therapeutics must begin before physical signs have developed, for if you wait for physical signs you wait too long.

5. Always say these things to a patient whom you suspect to be phthisical.

(a) Get yourself weighed by the same machine each time to see if you are losing weight.

(b) Use a thermometer two or three times each evening to see if there is any fever.

(c) Save your sputa to be tested for bacilli.

6. If besides auscultation and percussion these three points give negative results you may infer there is no phthisis.

Typhoid Fever.

SAMUEL GEE (*Clinical Aphorisms*).

1. Vomiting early in enteric fever, especially if frequent, indicates a severe case; it is accompanied by bad headache.

2. Muscular rigidity in enteric fever always marks a severe and often a fatal case.

3. Hæmorrhage from the bowels in enteric fever, if it occurs not later than the second week, may be disregarded, after that time it is a serious

symptom. Late and copious hæmorrhages are a frequent precursor of perforation.

4. Enteric fever seldom begins with a rigor; pneumonia often does. In the former disease the temperature rises slowly; in the latter it rises rapidly.

5. The febrile onset of secondary syphilis may be mistaken for enteric fever, and an incipient syphilide may be indistinguishable for a few days from typhoid spots.

6. Typhoid fever, marked by incessant raving delirium, is hardly to be distinguished from meningitis, especially when the typhoid delirium sets in unusually early during the first week of the disease and before the eruption appears. In some of these cases the eruption never develops. A negative Widal test may be expected early in the disease.—*Medical Review of Reviews*.

A French Physician's View of Life.

A new definition of life has lately been essayed by a French physician; this he has set forth in terms of disease, as follows:—

First year, infantile complaints and vaccination; second year, teething, croup, infantile cholera and convulsions; third year, diphtheria, whooping cough, and bronchitis; fourth year, scarlatina and meningitis; fifth year, measles. By now half the children are dead. The others live on as follows: Seventh year, mumps; tenth year, typhoid; sixteenth year, chlorosis and spinal irritation; eighteenth year, neurasthenia; twentieth year, cephalalgia, alcoholism and vertigo; twenty-fifth year, marriage (considered, presumably, as a disease). In the twenty-sixth year, insomnia; thirtieth year, dyspepsia and nervous asthenia; thirty-fifth year, pneumonia; forty-fifth year, lumbago and failing sight; fifty-fifth year, rheumatism and baldness; sixtieth year, amnesia, loss of teeth, hardening of arteries; sixty-fifth year apoplexy; seventieth year, amblyopia, deafness, general debility, loss of tone in the digestive organs, gouty rheumatism. For the seventy-fifth year he mercifully assigns death, a happy ending, indeed, for anyone whose life has fitted into this definition. The list here set forth deserves consideration, by the way, at the hands of those who believe that the practice of medicine is in danger of dying out for want of disease to treat; it seems there are likely to be plenty of them left, even after the prophylaxis propaganda, which is now rather rife, has reached its limit.—*The Canada Lancet*.

Massage of the Heart.

The following case is of more than usual interest, as it demonstrates the value of massage of the heart as an aid in difficult anæsthetic cases. Mrs. C., whose age was said to be 58, had to undergo an operation for an immense ovarian cystoma. On examination it was found that the heart was feeble and irregular, though the sounds were closed. The respiratory and urinary systems were apparently healthy. Ether was given with an ordinary Clover's inhaler, and the patient got well under. The operation was proceeded with, and the cyst was exposed. A large trocar was pushed into the cyst and the fluid contents evacuated. For a few minutes prior to this the patient had been breathing air, the Clover's inhaler having been withdrawn.

When a quantity of the fluid had escaped a sudden change came over the patient. The breathing first became jerky and irregular, and finally stopped. The heart, however, continued to beat for about two minutes after the failure of respiration, but it finally stopped also. Strychnine was injected hypodermically, hot cloths were applied to the præcordia, artificial respiration by Silvester's method was done, and rhythmic traction of the tongue was practised. These efforts were proving apparently of no avail, and the surgeon as a last resort seized the heart through the diaphragm and massaged it. Within a few seconds the heart began to contract, and in a few minutes the cardiac and respiratory functions were again in action.

The patient was given either by the open method, and the operation continued; but, needless to say, after the alarming interlude this was concluded with all possible speed. The cyst was very adherent, and no attempt was made to remove the posterior part. The free anterior part was ligatured and removed, and the remaining part was brought up and stitched to the abdominal wall. The patient recovered from the anæsthetic, and for a day or so appeared to be doing well. Sloughing of the cyst set in, and she died eleven days after the operation from asthenia.

Remarks.—Cases have been from time to time recorded in which heart massage has brought back to life the apparently dead; but in some of them life was maintained for a few hours only. In this case the patient lived for 11 days, and I hardly think the anæsthetic played any part in the fatal issue. No *post-mortem* was allowed, and therefore one could not examine the heart, which was most probably the seat of fatty degeneration. The patient was very badly preserved, and looked more like 70 than 58.—*The Hospital*.

Methylene Blue in the Treatment of Malaria.

At a meeting of the Société de Pathologie Exotique, held on May 13th, M. COUTO said that good results had been obtained in the treatment of certain severe forms of malaria by intravenous injections of methylene blue. In cases of malaria in which the attacks did not yield to quinine rapid recovery has followed the administration by the mouth of methylene blue in doses of 50 centigrammes a day in combination with urotropin or salol. In more serious cases, attended with coma or convulsions, he considered that intravenous injections of methylene blue repeated several times a day might have a good effect.—Paris Correspondent of the *Lancet*, May 23rd.—*The Medical Times*.

SURGERY.**Tobacco in Surgical Practice.**

Those who have never worshipped at the shrine of the Goddess Nicotine cannot realize the unpleasant and even serious effects which the deprivation of tobacco causes in some patients. To them it is more than a mere luxury; through long addiction it has become a necessity, which is only appreciated when it is withdrawn. The moderate user of the weed rarely experiences more than a soothing and comforting influence; but in the inveterate smoker there is no doubt that tobacco exerts a more or less marked action upon the circulatory apparatus, and its sudden deprivation in case of sickness may give rise to serious cardiac or circulatory disturbances, which, because unexpected, are attributed to other causes.

We therefore fully share the views expressed by Professor L. BOLTON BANGS, in a paper entitled "Some Observations on the Effects of Tobacco in Surgical Practice" (*Medical Record*, March 14, 1908). Reference is made by the author to the mental irritability, restlessness and even vital depression which are sometimes observed in surgical cases from the withdrawal of tobacco. For this reason he has occasionally not only winked at but encouraged the surreptitious use of tobacco in his hospital ward patients, and in private practice has advised the resumption of the habit at the earliest possible moment, even when the patient seemed too weak to draw on the cigar. In this way he believes that the irritability and restlessness have been relieved and the convalescent period shortened among some habitual users of tobacco.

The cases reported by BANGS are good evidence of the correctness of his statements. In two patients, one an inveterate cigarette smoker and the other a moderate user of tobacco, a condition of extreme depression,

almost approaching collapse, was immediately removed by encouraging the patients to take a few whiffs. In both these cases the surgical operations were not of a character to induce such a condition, and the speedy relief afforded by the smoking of tobacco strikingly shows that its withdrawal was directly responsible for the depression. Another excellent illustration of the correctness of these views is that of a patient who developed a neurotic condition after an operation for appendicitis, which could only be allayed with morphin, but soon vanished after permitting the patient to resume smoking.

Of course, cases in which such serious symptoms occur after abstinence from tobacco are rather exceptional, but no doubt they happen frequently enough to deserve careful attention. Probably the most marked beneficial effect from allowing its moderate use in those patients addicted to it will be observed in cases in which convalescence is tardy and in which it may afford the necessary stimulation.—*The International Journal of Surgery*.

Deaths After Operations.

Except in rare cases it is never an easy thing to decide whether a death which has occurred after a surgical operation has been accelerated or not by that operation. If it has been so accelerated the death is unnatural or violent, and comes within section 3 of the Coroners Act of 1887, which makes an inquest imperative in all such cases. Upon this point the coroners of the present day seem to be unanimous; and it must be conceded that an inquest is called for in the case of any death which there is the least reason to suppose has been hastened by an operation that was unnecessary, or was carried out with negligence or want of skill. Such a death is certainly unnatural, and in the public interest it should be inquired into with all care. But these occurrences are happily uncommon. On the other hand, deaths are constantly happening within a short time of operations which have been carefully performed by competent surgeons. Some of these operations are undertaken with the hope of effecting a cure, others merely as palliative measures. In either case, and especially in the latter, the necessity for an inquest is not apparent. Indeed, the holding of a public inquiry into the circumstances of every death occurring within measurable distance of an operation would not only be a sad waste of public time and money, but a very serious setback to the progress of surgery. Since those who are in professional attendance upon such cases cannot say whether or not death has been appreciably hastened by operative interference, it is

hardly reasonable to suppose that a coroner's jury will be able to decide. Nevertheless, Mr. JOHN TROUTBECK, at a recent inquest, delivered himself of a speech which clearly shows that he is in favour of an inquest being held in all such cases. It is difficult to see in what way wholesale public inquiries will help to solve such a complex problem. They will certainly frighten the public, and cause grave dislocation of the work of hospital staffs. If an inquest were ordered on every case of death in which an operation had been performed in connection with the last illness, the life of a busy surgeon would become intolerable. We cannot believe that there is urgent need for reform in this matter. The conditions of operative surgery have undoubtedly changed during the past few decades, and operations are much more frequent than they used to be. But the death-rate after operations has steadily diminished; and it would be a serious blow to surgical progress to punish every failure to prolong life by the discomfort and publicity of a coroner's inquest. Sir Victor Horsley, who attended the Battersea Coroner's Court on the occasion in question, to give evidence as to the operation he had performed, said that the case was such an ordinary one that he could not understand why an inquest was held. We imagine that the majority of the profession will agree with Sir VICTOR HORSLEY that inquests are only desirable in those cases in which suspicion arises that the operation was unjustifiable or was negligently performed. But Mr. TROUTBECK has declared that the matter shall not stop there. A very serious condition of affairs has been revealed to him, and public measures must be taken. Such questions, he maintains cannot be left to the judgment of any one profession, however honoured or however skilled. We may therefore expect to hear more on this subject before very long. In the meantime we sincerely hope that zeal will not get the better of prudence, and that one who exercises judicial functions will think more than once before he uses the strict letter of the law as a means towards a very doubtful end.—*The Hospital*.

The Treatment of Large Herniæ.

J. HAHN (*La Semaine Médicale*, Mar. 11, p. 128).—When a hernia is very large it may "lose its right of domicile in the abdomen," i.e., its reduction, if practicable, can be attained only at the price of a dangerous increase of intra-abdominal pressure, as the cavity has become unable to accommodate it. The operation for radical cure has in these cases a special gravity not only from the mechanical difficulties of reducing the hernia but from the tendency for the over distended abdomen to impede respiration and produce a state of slow asphyxia ending in cardiac failure. The patient is apt to exhibit increasing dyspnoea and

cyanosis with progressive feebleness of pulse and die 2 or 3 days after operation. When, as frequently happens, the patient is elderly and obese this tendency is increased and some surgeons decline to operate.

The writer has devoted attention to the preparation of such patients for operation. The ordinary methods of reducing obesity are useful but uncertain and require time. A more rapid result may be obtained by allowing the patient to eat and drink what he desires of a diet containing no fat and but little meat. An hour after the principal meal or if need be the two chief meals of the day, a sufficient quantity of a purgative mineral water to produce a liquid stool is given which removes most of the ingesta. This is continued for 8 days. After an interval of 2 or 3 days the course is resumed and is pursued till a sufficient degree of reduction is obtained. The abdomen is also submitted to a preliminary dilatation which is carried out as follows: The patient is kept in bed in the horizontal position or with the pelvis slightly raised. Taxis is practised 2 or 3 times daily for 15 or 20 minutes at a time, the patient being inverted in the case of inguinal or femoral herniæ. The rupture is thus partially reduced in successive portions and each of these is maintained by the use of a suspensory bandage or the application of a dressing. Some difficulty of respiration may be induced, and if this is intense it may be necessary to loosen the dressing and proceed more slowly. In this manner, by graduated stages, total reduction may be effected, and then a sufficient period must be allowed to elapse for the abdomen to adjust itself to the increased contents and for all respiratory difficulty to disappear before the radical cure is undertaken. In some cases where a hernia has been long unreduced the ring has become retracted to such an extent that taxis produces but little effect. In such cases the writer recommends a preliminary division of the ring, after the incision of which the skin is sutured and the progressive reduction practised as before, the radical operation being performed some weeks later when all the hernial contents have been returned to the abdomen. Even this may be insufficient and at times it is necessary to incise the fibrous layers about the neck of the sac or occasionally to open it by longitudinal incision which is then sutured transversely so as to increase the diameter of its neck. In a few days gradual taxis may be resumed taking care to avoid dragging on the wound or anything tending to its infection. In all cases whether a preliminary operation is required or not no radical operation is attempted until total reduction has been effected and sufficient interval has elapsed to allow of the adjustment of the intra-abdominal pressure and especially for the disappearance of all difficulty in respiration.—*The Medical Review.*

The Surgical Significance of Vomiting.

Stercoraceous or faecal vomiting is a positive indication of complete occlusion of the intestine, which may be primary, as in acute obstruction, or may supervene on a pre-existing chronic lesion such as a carcinomatous stricture. In either variety of case, as soon as complete occlusion of the bowel occurs, constipation becomes absolute, the appetite is completely lost, and the patient begins to belch and complain of nausea, which persists until vomiting finally occurs. At first the contents of the stomach are evacuated, soon mixed with bile. In the next stage the vomited matter is usually thin and of a brownish colour, or it may resemble pea-soup, or be of a yellow colour like the yolk of an egg. It acquires later what is called an "intestinal odour," and finally it becomes stercoraceous. As TREVES pointed out, this does not imply that the vomited matter consists of faeces. Stercoraceous vomiting may occur when the obstruction is quite high up in the jejunum, and is, as a matter of fact, a much more constant symptom in stenosis affecting the small than the large intestine. Stercoraceous vomit is vomit which has an *odour* of unhealthy faeces, which is imparted to it by the results of bacterial decomposition in the obstructed bowel. It is always watery, like the matter voided in diarrhoea, and never contains actual faecal masses. Lumps resembling scybala are sometimes seen, but are probably masses of coagulated milk stained with bile.

The question of the actual method of production of stercoraceous vomiting has given rise to no little controversy and speculation among medical authors of all times. GALEN attributed it to an antiperistaltic action of the bowels (*motus antiperistalticus*). With regard to the question of antiperistalsis, experiments on animals have proved that it can be excited by suitable stimuli. The special stimulus which seems to be demanded is a strong chemical irritant, and a weak solution of skatol is apparently sufficient. KIRSTEIN suggests, therefore, that the stercoraceous vomit contains skatol, which acts in this way. At present, however, the co-operation of antiperistaltic movements in the production of stercoraceous vomiting has not been proved, even if their existence be admitted.

HAGUENOT of Montpellier (1713) elaborated another theory. His idea is that the intestine above the stenosis is loaded with bowel-contents undergoing bacterial decomposition and liquefied by a copious intestinal secretion. The concomitant nausea starts an attack of vomiting, and the consequent descent of the diaphragm increases the intra-abdominal pressure, so that the accumulated matter must move along the only road that is open to it—i.e., towards the stomach. This hypothesis is supported

by the fact that cases are not uncommon of intestinal obstruction without stercoraceous vomiting, though an autopsy revealed the small intestine to be full of thin stercoraceous matter. In these cases death occurred before vomiting started at all. There was, therefore, no increase of intra-abdominal pressure, and consequently no regurgitation. But how do the bowel-contents above the stricture become intimately mixed with those higher up? LEICHTENSTEIN explains this by his "recoil-contraction" theory (Ruckstosscontraction). There is a violent peristalsis of the bowel just above the stricture, which forces the lowest contents against the stricture, and they recoil from the obstacle upwards for a few inches. This is repeated many times, and in the process the intestinal contents are mixed together.

BRINTON accepts the theory of HAGUENOT in the main, but goes one step further by suggesting that the peristaltic and diaphragmatic movements produce two distinct currents in the intestinal canal—a peripheral one travelling downwards and an axial current travelling in the opposite direction.

One need only mention, in passing, the old theory that stercoraceous vomiting is produced by insufficiency of the ileo-cæcal valve in order to point out that stercoraceous vomit does not contain formed fæces from the large intestine, and that regurgitation of fluid through the ileo-cæcal valve is practically unknown. It can be experimentally shown that if the cæcum is forcibly distended with fluid, the bowel itself will rupture before the valve-flaps give way.

Whatever the method of production of stercoraceous vomiting, one thing is certain and that is that its onset marks the beginning of the end. It is, in fact, the last act of the tragedy which will inevitably conclude with the death of the patient if no operative interference is undertaken. It is true that cases have been recorded where spontaneous recovery has taken place after the occurrence of stercoraceous vomiting, but the probability is that the obstruction in these cases was never of an organic nature. In a typical case the patient, weakened and exhausted by the constant pain and poisoned by the absorption of toxins from his own alimentary canal, gradually sinks until death puts an end to his sufferings.

The following case is a good example of the clinical picture presented. The patient, a man aged sixty-eight, complained of abdominal pain and vomiting of fifteen months' duration. The bowels were only opened once in three weeks and the motions were very constipated. He had passed no blood in his stools, nor had he had diarrhoea. The vomiting had no

relation to food. The abdomen was distended and peristalsis of the abdomen was plainly visible, but there was nothing which pointed to the site of the obstruction. The abdomen was opened and an inoperable annular carcinomatous stricture of the transverse colon was found. The abdomen was closed. Ten days after the operation the occlusion of the intestine appeared to become absolute, and the vomit soon acquired a stercoraceous odour. The patient became rapidly thinner and weaker. Three days later his temperature rose suddenly to 107.60 F., and he became comatose. He died the same evening.—*The Hospital*.

OBSTETRICS AND GYNÆCOLOGY.

Eclampsia without Convulsions.

SCHMORL (*Münchener m. Wchnschr.*, 1908, No. 7, S. 363) points out that during the last 20 years accumulated evidence has proved that eclampsia has characteristic *post mortem* appearances of its own, which are not associated with any other disease, so that it is not only generally possible to recognize cases of eclampsia from the cadaver, but it has also become possible to set down as eclampsia certain forms of disease arising in pregnancy, labour or childbed, which are clinically obscure. Several years ago SCHMORL reported three cases of the kind which, although during life there had not been any convulsions, were diagnosed as cases of eclampsia entirely upon the basis of their pathological anatomy. For such cases he had proposed the name "eclampsia without convulsions"; MEYER-WIRTZ, who reported an analogous case, and concurred in the explanation he (SCHMORL) had given, proposed the term "status eclampticus." In the course of the last two years a number of similar observations from various obstetric clinics had been published, which had all been explained in the same way, and he had himself, quite recently, seen two cases of the kind:

(1) In a primipara, 24 years of age, pregnancy caused no serious trouble till the beginning of the 8th month, when severe and recurrent headaches led her to consult her doctor. He, however, found nothing abnormal and, especially, on repeated examination found her urine normal. In the middle of the eighth month she suddenly became very ill, with severe pain in the epigastrium, frequent vomiting without apparent cause, vertigo and intense headache; her medical attendant could not detect anything objectively abnormal; her urine in quantity and quality was normal. On the same evening she grew worse and gradually became unconscious and afterwards restless, tossing about in bed, and towards midnight passed away in deep coma. Her temperature, normal in the

morning, sunk below normal in the evening; her heart's action was weak and much accelerated. Urine passed an hour before her death contained a trace of albumen but no casts. The autopsy made by SCHMORL was characteristic of eclampsia.

(2) A young woman, 22 years of age, had up to the last weeks of pregnancy been well, but then had some swelling of the feet and some puffiness of the face. One morning, while at work she became suddenly unconscious, but it was ascertained by the strictest investigation that she had no convulsions. The doctor called in sent her into hospital, where she regained consciousness for a little while but soon passed away in deep coma. She had no convulsions in the hospital. Exact examination had not been possible, but her urine contained a good deal of albumen as well as hyaline and granular casts. The *post mortem* appearances were characteristic of eclampsia, with extensive hæmorrhage in the right cerebral hemisphere, as is occasionally, if not very frequently, the case. The foetus showed seven months' development; the kidneys signs of subacute inflammation.

SCHMORL holds that both of these cases must be set down as eclampsia. Uræmia is altogether out of the question in the first case, and inconsistent with the great quantity of hepatic necroses in the second. In the application of the term eclampsia without convulsions or "status eclampticus" the pathological anatomy is for SCHMORL the ruling principle.

In regard to the various theories recently advanced as to the nature of eclampsia, SCHMORL has previously declared it probable that it may be from the placenta that the noxious material finds its way into the maternal circulation; he suggested two possible processes: first, that the placental cells after entering the maternal blood might, by their decay, give rise to toxic substances which promote clotting, a supposition which has since been advanced by VEIT and also by WEICHARDT; and secondly, that in the placenta itself abnormal products of metabolism might be formed which after entering the maternal system, lead to the occurrence of eclampsia, an idea embodied in LIEPMANN'S theory.—*The Journal of Obstetrics and Gynecology*.

The Sources of Infection of the Liquor Amnii.

RAINERI (*Gynaekologische Rundschau*, 1907, Heft 23) believes that 50 per cent. of the mortality of stillborn children is due to infection of the amniotic fluid. Experimental investigation has shown that normally the amniotic fluid has a marked bactericidal action, especially upon the staphylococcus and streptococcus and, to a lesser extent, upon the gono-

coccus. The possibility of amniotic infection seems to depend on whether micro-organisms can penetrate the healthy membranes or whether some injury or tear is essential for their transmission. RAINERI therefore removed a portion of healthy membrane immediately after child-birth, and with sterilized silk fixed it over the lower end of an open tube; into this tube he poured some sterile amniotic fluid, and then immersed it in a test tube of amniotic fluid previously infected with micro-organism; this test tube was left for two or three days in an oven kept at the body temperature. In several such experiments the infection did not extend through the membrane at all, but, after a longer period, one tube of sterile fluid became infected. Similar experiments were carried out with the membranes of animals, such as rabbits, and in them the time that elapsed before infection occurred was shorter; this was probably due to the thinness of the membranes in such animals. It would therefore seem that the rapidity with which infection occurs is largely due to mechanical causes, to the greater or less thickness of the membranes, and that all healthy membranes are impermeable, but by the continued action of the micro-organisms and their toxins, they are in time made permeable, the time being largely dependent on their thickness.

RAINERI concludes: (1) That when the amniotic sac is formed by the three membranes it is impenetrable to bacteria such as the *B. prodigiosus* *B. pyocyaneus*, the charbon bacillus, or their toxins; and also to the poisons of diphtheria and tetanus. (2) The liquor amnii, however, may putrefy and become infected although the membranes are uninjured. (3) Death and maceration of the foetus cause, after a certain time, histological changes in the membranes as a result of which bacteria can penetrate them and infect the liquor amnii. (4) Infection of the uninjured sac may occur when the child is dead or while it is living. (5) These infections may be absorbed by the mother and account for the occurrence of so-called "Wehenfieber." (6) Toxines permeate more quickly than the bacteria; slight intoxications are therefore to be differentiated from severe infections.—E. SCOTT CARMICHAEL.—*Journal of Obstetrics and Gynecology*.

Extra-Uterine Pregnancy at Term with Living Child.

POTOCKI (*Comptes Rend. Soc. d'Obst. de Gyn. de Paris*, January 1908) reports a case with the following history: A nullipara, aged 23, at the full term of pregnancy was sent into hospital by a midwife who had noticed some irregularity of the abdomen. The pregnancy had been normal until the end of the fourth month when the patient complained of severe pain in the abdomen with faintness, followed by diarrhoea and vomiting, and the

doctor in attendance treated her for threatened abortion with peritonitis. The symptoms abated, but returned a few weeks later, and the patient remained at rest until the end of the pregnancy. Foetal movements were felt from the 4½ month. At no time was there any hæmorrhage from the vagina. On examination the abdomen was found to be distended irregularly; in the hypogastric region a prominent boggy mass was felt limited above by a distinct margin three fingers' breadth below the umbilicus, and over this area the placental souffle was heard. Up to four fingers' breadth above the umbilicus was a fluctuant area over which the foetal movements could be seen; above it the body of the foetus could be felt back upwards, the head being in the left and the breech in the right side of the mother's pelvis. The foetal heart sounds were best heard in the middle line above the umbilicus. In the hypogastric region, to the right of the middle line, there was a prominence, regular in outline and firm in consistence, and separated from the placental mass by a sharp line; this mass was taken to be the body of the uterus. On vaginal examination an irregular mass was found filling the posterior and left fornices. The diagnosis of extra-uterine pregnancy was made and immediate laparotomy decided upon, it being the intention to extract the foetus by PINARD'S method, suture the sac to the abdominal wall, and allow the placenta to separate by itself. On opening the abdomen the amniotic sac was easily set free and the placental mass seen below it. The sac was opened and the amniotic fluid escaped, the foetus was extracted, the cord was cut as far away from the placenta as possible, and the child cried loudly. The wall of the foetal sac consisted of amnion alone, and was so thin that it was impossible to suture it to the abdominal wall. On gently raising the lower border of the placenta some alarming hæmorrhage occurred, but this was controlled by clamping the infundibulo-pelvic and broad ligaments close to the uterus, thus occluding the right uterine and utero-ovarian arteries. The placenta was enucleated almost spontaneously out of the abdominal wound and was removed. The tumour mass was brought up, and after its pedicle had been ligatured, was removed. The uterus and left appendages, appearing normal, were left in place. The abdominal wound was drained, the drainage being gradually removed, and the last tube finally taken out on the fifteenth day. The patient made an excellent recovery and left hospital a month later.

The child was healthy and well formed, the only peculiarity being a somewhat microcephalic condition with some ossification of the bones of the cranium. It did well up till the sixth month, when it became subject to convulsive attacks of an epileptiform character, and at the age of two years its condition bordered on idiocy.

POTOCKI gives a detailed description with illustrations of the specimens removed. The foetal sac is made up of amnion alone, the cord inserted laterally where the thin wall of the sac is joined to the placenta. The right ovary is normal; the abdominal end of the Fallopian tube is normal also, but the middle portion is thickened and adherent to the sac wall; further on the uterine end is found to become smaller at its uterine insertion. The ovum has been developed undoubtedly at the isthmus of the tube. A vertical section through the specimen shows the large placenta projecting into the cavity of the sac, the membranes inserted below and the whole foetal tubal sac wall ruptured with the exception of the amnion, which persisted alone. The placenta was turned completely inside out.

POTOCKI comments on the facts that the patient had never borne any children previously, that there was no hæmorrhage at any time during the gestation period, and that, up to the fourth month, no abnormal symptoms were observed. The subsequent attacks of pain cannot have been very severe as the patient had not to take to her bed for any length of time; she had the appearance of a healthy pregnant woman. That the pregnancy went to full term, but that the risks of accidents were great, was proved by the hæmorrhage which took place on touching the placental surface at the operation. It is therefore necessary in cases such as this one that the patient keep absolutely quiet in bed during the later months of gestation.

The abdominal examination revealed the surface irregularities, and the diagnosis of the position of the foetus and placenta was confirmed on opening into the abdominal cavity. The size of the abdomen corresponded to that of a full term pregnancy, and the time for operation was the correct one, the child being alive and viable. Suturing of the sac to the abdominal opening was impossible owing to the wall being so thin. The conservative practice of leaving the opposite tube and ovary intact was justified by the patient becoming pregnant again two years later.

The child was well-developed, but showed signs of microcephalus, although pressure on the head was impossible in this case.

It is of interest to note the site of the placenta in the isthmus of the tube, as the general idea is that when it is in this situation the gestation is liable to early rupture. The foetal sac was similar in form to that of a tubal pregnancy in the early months; this explains the facility with which it was removed at operation.—A. LOUISE MCILROY.—*Journal of Obstetrics and Gynecology*.

The Treatment of Eclampsia.

OSTERLOH, Dresden (*Munchener m. Wchnschr.* 1908, No. 11, S. 553), after reviewing the various methods of treating eclampsia that have been in vogue during the last 35 years, gives the results obtained in the 61 cases admitted to Dresden-Friedrichstadt Municipal Hospital since its opening on May 1, 1898, and gives the following details of his own method of treatment.

In cases of threatening eclampsia during pregnancy, that is to say, if in spite of treatment the albumen in the urine increases, microscopic examination shows severe renal disease, and the amount of urine excreted daily persistently and rapidly diminishes, the pregnancy is interrupted. The cervix is dilated with BOSSR's instrument or laminaria, until a rubber bag can be introduced (colpeurynter, TARNIER's balloon, or a BARNES-FEHLING metreurynter) followed by the induction and termination of labour on general principles.

If eclampsia actually occurs while the cervix persists and the os uteri is undilated, BOSSR's instrument may be used to obtain dilatation enough to allow delivery. Cervical incisions, however, have been employed successfully with the same object. Whenever less severe methods are justifiable, for example when the fits are neither violent or frequent and consciousness returns in the intervals, metreurysis is employed; in some instances the child is born spontaneously immediately after the expulsion of the bag.

It need hardly be said that when at the onset of the eclamptic convulsions the genital canal is already sufficiently dilated to allow it, the woman is delivered at once. Under this treatment 4 out of 5 sick pregnant women, and 7 out of 8 women in labour recovered.

But the treatment of eclampsia also included venesection to from 200 to 600 ccm. when the pulse was full and hard, cyanosis marked and oedema of the lungs beginning; also repeated subcutaneous injections of physiological salt solution to the amount of 1,000 or 1,500 ccm.; morphia hypodermically, combined in 7 cases with scopolamine; hydrate of chloral in clysters; ether and camphor subcutaneously for symptoms of collapse, followed by caffeine (the sodio-salicylate) to promote diuresis, and radiation with electric glow lamps to induce diaphoresis. Of the 7 cases in which scopolamine and morphia were used, 2 died both of whom fell ill at home; the first during an abortion at the beginning of the fourth month and after 69 fits in 18 hours; the second had 24 fits after spontaneous delivery and collapsed. In the 5 cases that got well the combination seemed to have a tranquilizing effect.

OSTERLOH intends to test STROGANOFF'S method of administering oxygen during the convulsions and, as recommended by BUMM and his pupils LIEPMANN and STREMPER, clearing the mouth and nose of mucus, artificial respiration, cold slapping and rubbing especially of the cardiac region, and massage of the heart. These measures he deems worthy of special attention in the presence of symptoms of collapse.—*Journal of Obstetrics and Gynaecology.*

Renal Decapsulation in Puerperal Eclampsia.

BAUMM (*Zentrab. f. Gynakol.*, 1908, No 12, S. 403) reported to the Gynaecological Society of Breslau the case of a tertipara, 34 years of age, who, after a normal confinement, was attacked by eclampsia. After ten fits her temperature was 39.5° C., her pulse 156 and remittent, and her respiration spasmodic, gasping and stertorous. As she was no better the next day she was operated on, the left kidney was decapsuled, but the right could not be found. She immediately improved and regained complete consciousness, but on the fourth day her mental condition became affected, she became maniacal and greatly excited; her pulse rose to 160; she rapidly sank and expired on the fifth day of childbed. The autopsy disclosed the cause of death to be internal hæmorrhage from two gastric ulcers, and also confirmed the absence of the right kidney.

FALGOWSKI described a case that had been under the care of Professor ASCH (*ante*, p. 222), and advocated timely operation before the function of the kidneys had entirely ceased, that is before their epithelial system had suffered excessively, for once extensive necrosis has occurred the relief of pressure afforded by decapsulation can be of no help.

ASCH said that when eclampsia occurred before delivery decapsulation might be deferred till it appeared that the customary beneficial effect of emptying the uterus failed to bring adequate improvement. For the severe cases coming on after delivery, such as that reported by FALGOWSKI, they had hardly any resource but decapsulation, the results of which had exceeded all their expectations. The acute swelling of the kidneys left them incarcerated in their capsules—entirely incapable of functioning. If toxic matter was the cause of the primary swelling of the kidneys, the extinction of their function led to retention of the poison. This vicious circle was ruptured by the decapsulation and the liberation of the kidneys, so that recovery was then possible.—*Ibid.*

For Intractable Vomiting of Pregnancy.

M. STEFFEN (*Archives de med et de Chir Spec.*) recommends :

R Tinct. iodini | 8. (gtt. xij)
Aquaë destillatæ 150 | (3v)
or 3j of the water may be re-
placed by cherry laurel water.

M. S. : Tablespoonful every two hours in half a glass of sugar water.

Or the following may be given :

R Chloroformi 60 | (3ij)
Tinct. iodini 6 | (3iss)

M. S. : Five drops morning and evening in a glass of seltzer water.

—*Medical Review of Reviews.*

THERAPEUTICS.

Local Treatment of the Commoner Acute Throat Affections.

BY

J. W. MILLER, M.D., D.P.H., *late Assistant Medical Officer
of Health, Blackburn.*

The important point in the local treatment of acute throat affections is the application of a solution which will have a cleansing effect by dissolving the mucus, and in addition an antiseptic action on the mucous membrane of the throat. Where there is much discharge of mucus and pus, as in the severer forms of scarlet fever, quinsy, follicular tonsillitis, and septic throats, simply painting the throat with an antiseptic solution several times daily is inefficient, and more vigorous treatment is necessary. In the case of children, syringing, douching, or swabbing is desirable, and for adults, in addition, gargling, if not too painful.

For syringing, a four-ounce ball syringe or a Higginson's syringe can be used, care being taken that too much force is not used, as there is a danger of fluid being forced along the Eustachian tube into the middle ear, with the attendant results of pain and inflammation; with douching, this accident is less likely to happen, as the stream is a gradual one. In the most severe cases, where the constitutional symptoms are marked, swabbing causes less disturbance to the patient. Where there is much inflammation of the mucous membrane of the throat, along with a considerable amount of discharge, the throat may be treated every hour or two hours, and in cases of moderate severity every four hours.

The anti-toxin treatment is chiefly relied upon in cases of diphtheria, and very little local treatment is necessary even in severe cases; syringing

may upset the patient too much when the constitutional symptoms are marked and the heart is weak. Swabbing or painting the throat every three or four hours will cause less disturbance than syringing or douching. In regard to the solutions used, sodium chloride, sodium bicarbonate, and borax will be found useful in dissolving mucus; they can be used separately or in combination, one or two drachms of either salt to a pint of warm water, or half a drachm of each salt in combination. The throat may receive a preliminary cleansing with the above solutions and an antiseptic applied, or the two may be used together in one solution.

The choice of antiseptics is limited—many are unsuitable either on account of their taste and smell or irritant action on the mucous membrane of the throat. An antiseptic solution pleasant in taste and smell and slightly astringent, can be made from a combination of the following, namely, thymol, menthol, oil of eucalyptus, benzoic acid, and oil of gaultheria, sig., liquor antisepticus; to these may be added boracic acid and sodium sulphocarbolate.

The following is a useful formula, one dose to be mixed with four ounces of warm water before use :

Sodium bicarbonate	..	gr. 5
Sodium baborate	..	gr. 5
Sodium chloride	..	gr. 5
Sodium benzoate	..	gr. $\frac{1}{2}$
Oil of eucalyptus	.	m. $\frac{1}{2}$
Thymol	..	gr. $\frac{1}{2}$
Oil of gaultheria	..	m. $\frac{1}{2}$

The following is a useful combination :

R Liq. antiseptici	...	3iss.
Sodium babor	...	3ij.
Glycerini	...	3ij.
Aq. ad.	...	3viii.

To be mixed with an equal quantity of warm water before use as a gargle, spray, etc.

One of the cheapest applications that can be used for the throat is chlorine water, and this solution has a cleansing as well as an antiseptic effect. In severe cases of throat affection with much discharge the disagreeable taste is not much noticed. It can be made as follows: A drachm and a half of powdered potassium chlorate is placed in a strong twenty-ounce bottle, and two drachms of strong hydrochloric acid are added; the acid is allowed to mix well with the powder by rotating the

bottle, the finger being at the same time kept on the cork. As soon as violent agitation ceases an ounce of water is added, and the bottle well shaken up; this process is repeated until sixteen ounces have been added, the bottle being well shaken after each addition of water; four ounces of syrup are finally added. This solution should be mixed with an equal part of warm water before use, or further diluted as required. Chlorine water will be found useful in cases of scarlet fever, and this treatment I have carried out in some thousands of cases with good results.

Formic aldehyde, on account of its disagreeable smell and irritant effect, has not been much used for throat affections. It is claimed for a new preparation, formamint, that these objections have been overcome by combining the antiseptic with lactose and a small quantity of pepsin hydrochloric acid. The substance is sold in lozenges, from which formaldehyde is liberated in the mouth; they are of pleasant taste and smell.

In cases where swabbing or painting are used in throat affections stronger solutions should be used than where the throat is syringed, douched, etc., such as chlorine water, or liquor antisepticus, with an equal quantity of water; solutions of carbolic acid, 1 in 40; biniodide of mercury, 1 in 500—1 in 1,000 (these latter have the disadvantage of being poisonous), or the following:

R	Iodi	...	...	...	...	gr. ij.
	Pot. iodidi	...	...	...	...	ʒss.
	Glycerine	...	...	...	...	ʒj.

In diphtheria it is advisable to paint the throat with biniodide of mercury solution or other solution twice daily, even after all membrane and inflammation has disappeared, to get rid of any diphtheria bacilli present in the throat.

In mild cases, and where the inflammation is subsiding in severe and moderately severe cases, solutions less marked, in their antiseptic action or those of an astringent nature can be used, *e.g.*:

1. A saturated solution of boracic acid in water. 2. Alum or potassium chlorate, gr. x. to an ounce of water. 3. The preceding in combination with tincture of myrrh, m. x.

4. Borax, gr. iij., in combination with potassium chlorate, gr. x., to an ounce of water.

The above solutions should be mixed with an equal quantity of warm water before use. The throat can also be painted with glycerine of tannic acid.

If there is much pain on swallowing, painting with a 5-10 per cent. solution of cocaine will give relief, while pain and swelling in the glands of the neck are relieved by the application of hot fomentations.

The local treatment referred to is applicable to all acute infective conditions of the throat, including syphilitic affections, membranous forms of tonsillitis other than diphtheria and simple acute tonsillitis.—*The Hospital*.

Treatment of Small-Pox with Large Doses of Mercury.

Capt. V. B. NESFIELD, F.R.C.S., I.M.S. (*Lancet*, Apr. 25, p. 1235.)—The resemblance between syphilis and small-pox suggested to the writer the use of mercury in the latter. Experience with syphilis showed that 30 gr. of mercury with chalk per day for 7 consecutive days produced no diarrhoea or symptoms of poisoning but, on the contrary, gave such marked relief that he decided to employ the same doses in small-pox. He did so in 8 cases in natives of Oudh with most satisfactory results. Three of the patients had been vaccinated and 5 had not.

A boy, aged 12, had his face, arms and legs thickly covered with typical small-pox papules. They were present also on his scalp, palms and soles. On the face the papules were almost confluent. No vaccination marks were present; the case was severe. He was removed to the small-pox hospital and given 5 gr. of mercury with chalk thrice a day for 6 days, then twice a day for the next 4 days and once a day for the next 3 days. Sweet oil was used to soften the skin. The diet consisted of 4 pints of milk a day. The course of the disease was mild. The temperature never rose above 103° and the papules did not suppurate and break down. There was no diarrhoea or sign of mercurialism. On discharge, 6 weeks after admission, there were no scars, merely the usual pigmented patches seen in natives. The desquamation of the palms and soles was rather tedious.

The remaining 7 cases were more than moderately severe, and all were seen early. The treatment consisted of 10 gr. of mercury with chalk thrice a day for 6 days, then twice a day for 4 days, and once a day for 4 more days. Sweet oil was used to soften the skin; no other medicine was given. There was never any sign of mercurial poisoning and no diarrhoea. The mercury seemed to have a marked influence in lowering the temperature and in modifying the course and subsequent fate of the papules. No active suppuration occurred and the disease was both cut short and simplified, leaving the patients in most instances free of all pits and scars (2 patients showed 2 small pits each on the face.)

The writer intends to further push the mercury during the first 3 days as it is the immediate influence which is so necessary. From experiments he finds that the lethal dose of mercuric chloride is 1 in 1,000,000.

in 10 minutes, for the bacillus coli suspended in water in quantities of 200,000 per c.c., at a temperature of 98°. Also, that other things being equal, the lethal power of Hg Cl₂ is proportionate to the temperature at which the germicidal action takes place. Probably the ingestion of 30 gr. of mercury with chalk per day produces at any rate a 1 in 500,000 solution of mercury in the blood (10 stones = 980,000 gr.). The spirochæta pallida is very susceptible to the influence of mercury. These experiments with variola appear to show that the micro-organism of small-pox (probably also a protozoon) is also susceptible.—*The Medical Review*.

Sea Water as a Therapeutic Agent.

In a recent number of the *Repertoire de Pharmacie* M. P. CARLES gives an interesting account of the use of sea water in medicine. He first calls attention to the fact that in addition to common salt, sea water contains many important mineral substances, the total solid matter amounting to from 3.02 to 3.08 per cent. Some of these substances are present only to an infinitesimal extent, but in biology the value of a substance is not necessarily dependent upon its actual size or quantity.

It has been shown that various marine plants have the power of extracting from sea water minute quantities of compounds of iodine, bromine, arsenic, boron, manganese, lithium, fluorine, rubidium, cesium and other elements. Hence, it was not unreasonable to suggest that the higher animals might derive benefit from the assimilation of even minute traces of those physiologically active substances.

Sea water has been given by the mouth and by injection with good results in cases of dyspepsia, loss of appetite and tuberculosis. In general the appetite was improved and strength was rapidly regained.

In order to obtain the best and most immediate results it is necessary to observe certain precautions. The sea water must be natural, as it is impossible to imitate so complex a liquid. Indeed, it has been proved that sea salt, when redissolved in distilled water, lacks some of the properties of natural sea water, exercising a tonic action upon a dog when injected subcutaneously. It must be freshly collected, as it loses carbon dioxide on standing, with precipitation of some of its salts. It shall be taken from the open sea remote from rivers.

In conclusion M. CARLES points out that this method of treatment is not invariably suitable and that it rests with clinical experience to indicate the cases in which it may advantageously be employed.—*The Dietetic and Hygienic Gazette*.

Novaspirin.

THE BAYER CO., London.—Novaspirin passes unchanged through the stomach, and therefore is not likely to cause gastric disturbances. In the intestines it decomposes into nascent salicylic acid and methylene-citric acid, without giving rise to irritation or unpleasant by-effects, such as tinnitus aurium, headache, cardiac depression, or renal irritation.

Chemically, Novaspirin is methylene-cytril-salicylic acid. It is a white, odourless powder of faint acidulous taste, easily soluble in alcohol, difficultly soluble in chloroform and ether, and almost insoluble in water. It contains 62 per cent. of salicylic acid.

Novaspirin has proved an excellent remedy in influenza, in which it promptly relieves the distressing pains, reduces the fever, and in general promotes the comfort of the patient. It is also equally valuable in the treatment of colds, such as coryza, tonsillitis and pleurisy, neuralgia, nervous headaches, tabes and carcinoma. The administration of Novaspirin is not followed by profuse perspiration, because the drug is absorbed so slowly—a matter of importance when diaphoresis is not desired, as in cases of weak patients, grave cardiac affections, chronic wasting diseases, and danger of severe hæmorrhages—nor has ringing in the ears been observed to follow the use of the drug. It is an efficient and agreeable remedy in the various forms of rheumatism, both articular and muscular, as well as in gouty conditions, and is also highly recommended in neuralgias—especially sciatica and intercostal neuralgia—and other painful affections.

The average dose for adults is 15 grs. several times a day; this may be increased to 30 grs. in rheumatic and gouty troubles. Owing to its insolubility in water, it is best administered in powders, wafers, or in the form of tablets.—*The Bristol Medico-Chirurgical Journal*.

Some Points in Connection with Vaccine-Therapy and Therapeutic Immunization Generally.

Sir AMROTH E. WRIGHT contributes to the May issue of the *Practitioner* a most exhaustive and instructive paper on this subject. Before proceeding he reminds the reader of recent developments in connection with vaccine-therapy and auto-immunization, and recapitulates:—

"(a) It has been established by my fellow-workers and myself in the Inoculation Department of St. Mary's Hospital that vaccine-therapy is applicable not only to localized infections, but also to septicæmic diseases.

"(b) We have shown that spontaneous auto-inoculations occur not only in connection with septicæmic diseases, but also in connection with localized diseases where the focus of infection has attained to a certain development.

"(c) We have shown that auto-inoculation can, in the case of localized disease, be artificially induced by massage, by active and passive movements, and by active and passive hyperæmia affecting the focus of infection.

"(d) We have shown that such artificially induced auto-inoculations can be turned to useful account in diagnosis, evidence of an auto-inoculation with the products of a particular microbe being equivalent to proof of the presence of that microbe in the particular region of the body which has been explored.

"(e) We have shown that the success of certain empirical methods of treatment, and, in particular, the success of BIER'S method of passive congestion, is probably largely dependent upon the fact that, when skilfully and felicitously applied, it induces adequate and not excessive auto-inoculations."

He does not further revert to this, as it was dealt with in a paper contributed to the *Lancet* of Nov. 2nd last year.

In Part I of his new contribution he deals with the question as to whether it would not be possible to achieve and maintain an increased output of protective substances apart from periodic measurements of the contents of the blood in protective substances. In discussing this question he arrives at the conclusion that, by clinical observations and blood testings, such a knowledge of the effects of bacterial vaccines has been arrived at as would make it possible to guarantee a good result from the inoculation of a definite quantity of a standardized vaccine, and he suggests that the clinical symptoms of the patient will furnish to the immunizator a guide by which he may regulate his immunization procedures. In dealing with this latter suggestion, he would be tempted to ask the following questions:—

"(1) Is it quite certain that there will, in every case where immunization may be called for, be clinical symptoms to guide us in our dosage?

"(2) Given the case where the patient presents an obvious pathological condition (I have in view here either a definite constitutional disturbance or a definite local lesion), what will be the symptoms which will tell us that we have inoculated, as the case may be, an appropriate

dose, or an excessive dose, or too small a dose of our vaccine; and, again, what will be the signs by which we shall know that the hour has arrived for re-inoculation?

"(3) Is there any certitude that such changes, as our inoculations may be capable of producing, will, in every case, produce with sufficient promptitude to inform us, before the inoculation next in series falls due, whether we ought to employ the same dose of vaccine, or increase or diminish the dose?

"(4) Is it inconceivable, in the case where the localized focus of infection is shut off from the blood stream, that we may obtain by inoculation an effect upon the circulating blood without obtaining a corresponding change in the condition of the focus of infection?"

Instead of merely suggesting these questions, he tries to supply the answers. In connection with the question as to whether we may trust to the clinical symptoms to serve as guides in therapeutic inoculation, four different classes of cases have to be considered. We have:—

"(1) The case of a localized infection, which is of such a nature that the clinical observer can immediately either see for himself or learn of every change which occurs in its condition.

"(2) The case of a localized infection where the conditions are unfavourable to the observation of changes in its condition.

"(3) The case of an acute febrile condition.

"(4) The case where all local and general symptoms are in abeyance."

The author exhaustively deals with each of these cases, and gives a *resume* of his conclusions, and apologizes for the metaphor:—

"(1) Where it is a question only of a short passage, or, as the case may be, of a succession of short passages, with landmarks continuously in view, over familiar waters where, while stranding is not out of question, serious shipwreck is unthinkable, it would be ridiculous to insist that the pilot should keep the lead going, and should set his course by compass readings. On the other hand, even here, if, as often happens, the landscape becomes indistinct, or is temporarily obliterated, the only rational alternative to anchoring and waiting for the re-appearance of the landmarks would be to proceed by compass readings and by the lead.

"(2) Where it is a question of a protracted voyage, during which no sequence of guiding landmarks could be expected to come into sight, it is desirable that compass readings should be taken every time that the ship is put upon a new course, or, if that should be impossible, always at the very first warning of impending danger. For otherwise the vessel might

very easily zigzag about to no purpose, or she might, if the error in shaping her course happened to be a cumulative one, go very far out of the right track, and come to serious disaster.

"And we must here beware of thinking that the possibility of error in connection with the laying off of the ship's course is the only possibility of error which we have to take into consideration. These are cases in which the ship may be flung violently off her course by the buffeting of winds and seas. And there are cases where, under some bias of wind or current, the ship may come off her course in a perfectly insensible manner. She may then easily run on the rocks if we do not lay out our bearings by the help of the compass.

"(3) Where it is a question of navigating through specially perilous and uncharted waters, where a wrong turn of the helm might at any moment bring disaster, he would be a very imprudent and reckless seaman who would dispense with the aid of lead or compass, even when there were landmarks in sight. Continuous soundings might here quite well give us timely warning of dangers, of which, even with a good lookout, we might be unaware until we had already run in amongst them. Nor would the prudent seaman discard compass and lead until the vessel had come safely into harbour, or until, as the case might be, all efforts to save the ship had been abandoned.

"My metaphor will have accomplished its purpose if it has brought home to you that, while we can in many cases conduct our immunizations aright by relying on the experience gained in the past, and upon clinical observation, there are whole classes of cases—these being cases where the only hope for the patient is to be found in the proper conduct of immunization procedures—where the clinical symptoms cannot be trusted to furnish the necessary guidance.

"If this is so, it will be well for us to consider how it has come about that the clinical symptoms have been proclaimed to be an all-sufficient guide. I suggest that the explanation of this is to be found not in any doubt as to the reality of the risks which might be incurred by the administration of excessive doses of vaccine, but in the persuasion that, if only the glaring errors which were committed in connection with the original inoculations of Koch's tuberculin are avoided, the results of vaccine-therapy will be, on the whole, satisfactory. Associated with this is, I submit, also the further persuasion, that where failures occur the responsibility for these need not necessarily rest with the immunizer, and that such responsibility can at any rate never be brought home to him.

"I see nothing to censure in this attitude. It is clearly an attitude which conforms in every point to the accepted code of medical ethics. But, at the same time, I cannot conceal from myself that in every other department of practical life—let us think, for instance, of shipping, or railways, or any engineering industry—a much higher standard of responsibility is enforced. It is only in connection with medicine that the expert is content to aim at an average of satisfactory results; it is only in medicine that he thinks efforts to secure uniform success uncalled for; and it is only in medicine that he contends that he has at disposal all the information he requires for his guidance, when a moment's consideration would make it clear to him that he is taking risks, and is proceeding in the dark.

"I make no doubt that this will not go on for ever, and that the higher standard of responsibility, which is enforced everywhere else in civilized life, will be enforced also in medicine. It will be enforced then when we shall have shaped it into something more like a scientific profession."

In Part II the author asks: "How may such antibacterial agencies as the patient may already be possessed of, or may acquire by immunization, be directed to the destruction of microbes in the focus of infection? This he subdivides—(1) The general question of the distribution of antibacterial agents in the normal organism. (2) The nature of the inflammatory reaction which supervenes upon a bacterial invasion of the tissues, and changes in the distribution of the antibacterial agents which are effected by that reaction. (3) The conditions which present themselves in the case where microbes have survived the inflammatory reaction, which has supervened upon their invasion, and have established themselves in a nidus in the tissues. He then proceeds to the consideration of the therapeutic measures by which we may bring the antibacterial agencies of the circulating blood into effective operation upon the microbes in a nidus of infection.

In conclusion, he finds a final word on the organization of the medical profession in carrying out work of therapeutic immunization.

"I have already said that in the future of my expectation the physician will be an immunizer. I conceive that the task of making, by bacteriological methods, a direct or inferential diagnosis of the nature of the patient's infection, the task of preparing and standardizing special vaccines, the task of controlling the output of protective substances by blood examinations, and the direction of immunization procedures where blood examinations are required as a guide, will all fall upon his

shoulders. To carry out these difficult and delicate tasks I conceive that the physician will require to be a trained laboratory worker.

"But the physician—so I conceive of the matter—will not be the only immunizator.

"Upon the general practitioner, when he shall have been trained in the physiology of immunization, as he is now trained in the physiology of the circulatory system or the digestive system, will devolve, I take it, all such immunization as it shall be possible to reduce to a system of routine, and all such immunization as can be effectively conducted under the control of the clinical symptoms.

"In addition to this there will, if I mistake not, devolve upon the general practitioner, in association with the surgeon, all that department of immunization which consists in directing the protective agencies which are available in the patient's blood to the destruction of microbes in the local focus of infection.

"And in the future that I foresee the surgeon also will—I have just hinted as much—be, in a very real sense, an immunizator. He will, I doubt not, except in those rare cases where there is an isolated bacterial focus, and where the complete extirpation of that focus is practicable and advisable, direct all his operations in connection with bacterial disease to the attainment of immunization. I conceive, for instance, that where he carries his incision through infiltrated tissues he will feel that his work remains incomplete till he has secured that free flow from his wounds which is essential to immunization. Again, when he deals with a suppurating focus he will, I take it, concern himself not only with evacuation and effective drainage, but will realize that a continued suppuration without the achievement of immunization in a case which has been operated upon is the reproach of surgery.

"And, above all, I anticipate that, while the method of bringing the antibacterial agencies of the blood into effective operation upon microbes in the focus of infection will every day be improved, and every day be more and more intelligently exploited, every one who follows our profession will come to realize that any such measures must be futile unless where adequate protective substances are at disposition in the blood stream"—*The Therapist*.

The Treatment of Neurasthenia.

W. ERB (*Therapie der Gegenwart*, H. 6, 1907; *Centralblatt für Innere Med.*, No. 42, 1907).—The disturbances of neurasthenia are likened by the author to the normal fatigue processes, and interpreted as nothing more or less than a pathological increase and fixation of fatigue. In the

treatment the most important point consists, in the first place, in a strict regulation of the diet and general habits of the patient, accurately adapted to individual requirements. The author recommends albuminoid substances and fat in abundance, with a sufficient amount of starchy foods, eggs, fruit, and vegetables. He cautions against a uniform mode of nutrition, especially against the rigid vegetarian diet which is becoming fashionable. Meanwhile, the temporary adoption of a purely vegetarian diet is often useful. Alcoholic stimulants are not absolutely prohibited, especially not in the case of patients who are accustomed to their use. Good beer (Munich and Pilsener) is to be considered rather as a food and as an appetizer, and is therefore allowed in moderate quantities. A moderate indulgence in tea is likewise permissible. On the other hand, the use of coffee is almost invariably forbidden by the author. No success was observed by him from the Weir Mitchell method and similar forced feeding.

One of the chief problems in the treatment is the regulation of the patient's voluntary movements. Individuals having cerebral neurasthenia will tolerate much more functional motor exercise than those having spinal or sexual neurasthenia. Especial caution is indicated in the presence of a cardiac neurosis, and the work required of these patients should be exactly adapted to the effect it has upon the heart. Hence, a careful control of this effect is indispensable. The regulation and hygiene of the intellectual work, the business or occupation is of precisely the same importance. In the beginning, it is often necessary to forbid work altogether, but later on, or in the milder cases, it may be permitted, always to a moderate degree and in a strictly regulated manner. The author observed no specially brilliant results from so-called "occupation" therapeutics.

A change of air under certain conditions has a very favourable effect. As a rule, the patients derive more benefit from the mountains than from the sea-shore. The value of air and sun baths has not yet been definitely established. Caution is indicated in the prescribing of long journeys or so-called recreation trips, but sensible walks or short excursions can only have a favourable effect.

Concerning hydrotherapeutics, in a general way only the mild and gentle procedures are advisable, such as lukewarm or cool full and half baths, friction, washing of the back, lukewarm douches, footbaths in running water, moist cold packs, &c.

Among the medicinal agents, the preparations of iron and arsenic are the most useful in these cases. The author has a preference for his tonic

pills (ferrum lactic, with extr. quin., extr. nuc. vom., extr. gen.), also some other simple iron preparations (ferrum oxid.-sacch., ferr. peptonat., ferratose, Bland's pills, &c.), or Fowler's solution, with strychnia, acid. arsenicos, arsen. ferratose, &c. This medication has been very usefully enriched by the organic preparations of arsenic, which may be employed subcutaneously such as natr. kakodylic, arsyodyl, arrhenal, and the latest remedy of all atoxyl, which may be very advantageously administered internally in shape of atoxyl tablets, or in combination as atoxyl-Bland capsules.

The bromine preparations combined with codein in certain cases likewise find a field of application, and among the new hypnotics, bromurai may be recommended (in doses of 0.3 grm., to be once repeated during the night if necessary). The employment of narcotics is contra-indicated, and should be very carefully avoided in the management of neurasthenia patients.—*Medical Review of Reviews.*

BOMBAY MEDICAL CONGRESS.

Proceedings of Executive Sub-Committee Meeting held in the Bombay University Library on Tuesday the 7th July at 5 p. m.

Present at the Meeting.—Sir Bhalchandra Krishna (Presiding); Lt. Col. Collie, I. M. S., Dr. Temulji Nariman, Dr. Shroff, Captain Gordon Tucker, I. M. S., Dr. Goldsmith, Lt.-Col. Jennings, I. M. S. (General Secretary).

1. *Notice.*—The Notice convening the Meeting was read.
2. *Minutes of previous Meeting.*—The Minutes of the previous meeting were read and confirmed.
3. *Financial Statement.*—The General Secretary produced Financial Statement for the month of June 1908 showing a total expenditure of Rs. 112-6-0 (Rupees one hundred and twelve and annas six only). Towards this amount sanction only existed for Rs. 50-0-0 (by Resolution 5 of Central Committee Meeting of 28-4-08). A balance of Rs. 62-6-0 (Rupees sixty-two and annas six) required sanction, which was unanimously accorded on the motion of Sir Bhalchandra Krishna (seconded by Lt.-Col. Collie).
4. *Sub-Committee Reports.*—A. *Procedure Sub-Committee*—On the motion of Sir Bhalchandra Krishna (seconded by Dr. Temulji Nariman) the following report of the Procedure Committee was adopted, viz:—

Minutes of Meeting of Procedure Committee of the Bombay Medical Congress held in the University Library at 5.30 p. m. on Tuesday 23rd June 1908.

Present at the Meeting.—Lt.-Col. C. H. L. Meyer, I. M. S. (in the Chair); Major Winter, R. A. M. C., Dr. Choksey, Dr. Rajaballi Patel, Dr. Modi, Capt. Gordon Tucker, I. M. S., Capt. Liston, I. M. S., Lt.-Col. W. E. Jennings, I. M. S. (General Secretary).

1. *Notice.*—The Notice convening the Meeting was read.
- 2 & 3. *Office-Bearers of Congress.*—It was resolved on the motion of Lt.-Col. Jennings, (seconded by Lt.-Col. C. H. L. Meyer) that the following be the list of Offices in the Congress, viz:—PRESIDENT; Vice-Presidents; Members of Central Committee; General Secretary; Assistant Secretary; Members of Executive Sub-Committee; Members of Procedure Sub-Committee; Members of Transactions Sub-Committee; Members of Sub-Committee for selecting authors for original papers in Sections I, II, III & V; Members of Sub-Committee for selecting authors for original papers in Section IV; Members of Sub-Committee for examining and reporting upon voluntary papers; Members of Finance Sub-Committee; Members of Collecting Sub-Committee; Members of Reception Sub-Committee.

Section I.—(Cholera, Dysentery, Enteric Fever and Tropical Diarrhoeas)—Sectional President; Vice-Presidents; Secretary and Sectional Editor; Assistant Secretary.

Section II.—(Malarial Fever, Plague, Leishman Donovan Body Invasion and Relapsing Fever).—Sectional President; Vice-Presidents; Secretary and Sectional Editor; Assistant Secretary.

Section III.—(Parasitic Insects, Snake Venoms, Beri-beri and Mycetema Leprosy and Elephantiasis).—Sectional President; Vice-Presidents; Secretary and Sectional Editor; Assistant Secretary.

Section IV.—(Systems of Disposal of Sewage in India, Water Supplies, Disinfection and Naval and Marine Hygiene, including Quarantine).—Sectional President; Vice-Presidents; Secretary and Sectional Editor; Assistant Secretary;

Section V.—(Ophthalmic Surgery, Vesical and renal Calculi and Miscellaneous Papers); Sectional President; Vice-Presidents; Secretary and Sectional Editor; Assistant Secretary.

Section VI.—(Exhibition).—President; Vice-Presidents; Secretary for Pathological Department; Three Assistant Secretaries for Pathological Department. Secretary for Commercial Exhibits, Mr. Charles W. White (already appointed). Three Assistant Secretaries for Commercial Exhibits; Secretary for Sanitary Exhibits; Three Assistant Secretaries for Sanitary Exhibits.

General Curator and Sectional Editor. } The General Secretary.

Assistant Curator Mr. A. K. Pai (already appointed).

It was further resolved on the same motion that among the appointments, yet to be made to the above offices the following be recommended, viz :—

Section I Secy : & Sectional Editor : Capt. Gordon Tucker, I. M. S.

„ II. do.	do.	Dr. Choksey.
„ III. do.	do.	Dr. Powell.
„ IV. do.	do.	Capt. Hutchinson, I. M. S.
„ V. do.	do.	Dr. S. H. Modi.
„ VI. do. Pathological Dept.		Capt. Mackie, I. M. S.
„ One Asst. Secy. do.		Dr. S. B. Banker.
„ Secy. Sanitary Exhibits		Dr. Goldsmith.

4.—*Sub-Committees.*—(a) It was resolved on the motion of Lt.-Col. Jennings (seconded by Dr. Choksey) that the following members of the Central Committee be invited to form a Sub-Committee to select authors of original papers in Sections I, II, III and V, viz., Lt.-Col. Meyer, I. M. S., Captain Liston, I. M. S., Dr. Rajaballi Patel and Captain Gordon Tucker, I. M. S.

(b) It was resolved on the motion of Lt.-Colonel Meyer (seconded by Capt. Liston) that the following members of the Central Committee be invited to form a Sub-Committee to select authors of original papers in Section IV, viz., Major Winter, R. A. M. C., Dr. Goldsmith, Dr. Choksey and Lt.-Col. Jennings, I. M. S.

(c) It was resolved on the motion of Lt.-Col. Meyer (seconded by Major Winter) that the following members of the Central Committee be invited to form a Sub-Committee for reporting on voluntary papers, viz., Col. Forman, A. M. S., Lt.-Col. Collie, I. M. S., Sir Bhalchandra Krishna and Lt.-Colonel Jennings, I. M. S.

N.B.—The General Secretary was requested to ask Sub-Committees (a) and (b) to submit their reports direct to him for consideration at the Executive Sub-Committee meeting on the 7th proximo.

5.—*Additional Members to Procedure Sub-Committee.*—It was resolved on the motion of Lt.-Col. Jennings (seconded by Dr. Choksey) that Lieut. Lafond and Asst. Surgeons Dagina and MacQueen be invited to serve on the Procedure Sub-Committee.

6.—*Final Programme.*—It was resolved on the motion of Dr. Choksey (seconded by Dr. Rajaballi Patel) that the following draft submitted by the General Secretary be recommended as the Final Programme of the Session, viz :—

PROGRAMME.

SECTION I.

First Day.—Cholera (with special reference to treatment).

Second Day.—Dysentery (the etiology, differential diagnosis and sequelæ of the various clinical types ; their treatment and prophylaxis).

Third Day.—Enteric Fever (with special reference to etiology, and prophylaxis).

Fourth Day.—Tropical Diarrhoeas (with special reference to etiology, pathology and treatment.)

SECTION II.

First Day.—Malarial Fevers (the differential diagnosis of the various types with suggestions as to means of prevention, and exhibition of the results of past measures from available statistics).

Second Day.—Plague (with special reference to etiology, prophylaxis and treatment).

Third Day.—Leishman-Donovan Body Invasion (the pathological conditions dependent thereupon, with suggestions as to treatment and prophylaxis).

Fourth Day.—Relapsing Fever (with special reference to etiology and prophylaxis).

SECTION III.

First Day.—Parasitic Insects (the part played thereby—excluding fleas and mosquitoes in the dissemination of diseases peculiar to the Tropics, the geographical distribution of those insects and suggestions as to the best means of obviating their attacks).

Second Day.—Snake Venoms (clinical and pathological effects of the different varieties, and results of special lines of treatment illustrated from available statistics).

Third Day.—Beri-beri (with special reference to etiology, pathology, prophylaxis and treatment).

Fourth Day.—Mycetoma Leprosy and Elephantiasis (with special reference to the pathology distribution and bacteriology of Mycetoma and Elephantiasis and the prophylaxis, bacteriology and results of special methods of treatment of Leprosy).

SECTION IV.

First Day.—Water Supplies (measures necessary to ensure purity, &c.)

Second Day.—Naval and Marine Hygiene (including Quarantine measures, the shore and board ship environment of mariners, the incidence of tropical diseases among mariners stationed for long periods in tropical waters with suggestions for prophylaxis, etc.).

Third Day.—Systems of Disposal of sewage in India.

Fourth Day.—Disinfection (methods applicable to Indian houses including Methods of destroying Vermin).

SECTION V.

First Day.—Ophthalmic Surgery.

Second Day.—Vesical and Renal Calculi.

Third Day.—Miscellaneous.

SECTION VI.

All Days.—Exhibition.

Second Nights.—Lantern Slide Demonstrations.

The meeting was then adjourned *sine die* the General Secretary being asked to submit these proceedings to the Executive Sub-Committee to be held on 7th Proximo.

B.—Report of the Sub-Committee for selecting original authors in Section IV.

On the motion of Dr. Temulji Nariman (seconded by Dr. Goldsmith) it was resolved that the following authorities suggested by this Sub-Committee be invited to contribute papers in Section IV, viz:—

(1) *Water Supplies.*—Dr. Thresh, Sir Henry Littlejohn, Dr. W. G. Savage, Dr. B. P. Ghadiali, Dr. Porter, Dr. Chalmers, Sir C. Cameron, Dr. Louis Parkes, Dr. J. T. C. Nash, Col. Lane Notter, Dr. B. A. Whitelegge, Dr. H. Kenwood, Dr. N. Katrak and Dr. K. E. Dadachanji.

(2) *Naval and Marine Hygiene.*—Fleet Surgeon Bassett Smith, R. N., Staff Surgeon Clayton, R. N., Dr. Blackmore, Dr. Clemow, Dr. B. S. Shroff, Dr. Davies and the Port Health Officers of London, Madras, Calcutta, Brisbane, Sydney, Adelaide, Colombo, Rangoon, Singapore and Liverpool.

(3) *Sewage Disposal.*—Dr. Fowler, Dr. Goldsmith, Mr. Carkeet James, Mr. Baldwin, Latham, Mr. Dibdin, Dr. Scott Moncrieff, Mr. W. H. Maxwell, Dr. Rideal, Mr. Brodie, Mr. Hamblett, Dr. Mc Wheeny, Dr. J. G. Cursetjee and Dr. F. B. Master.

(4) *House Disinfection.*—Professor Max Schottellius, Dr. Sorab, C. Hormusji, Dr. Pearse, Dr. Turner, Capt. Cornwall, I. M. S., Lt.-Col. Weir, I. M. S., Dr. Turkhud, Dr. Niven, Dr. Godinho, Dr. Anthony Roche, and Major Blackburn Smith, I. M. S.

C.—Report of Sub-Committee for selecting original authors in Sections I, II, III and V.

On the motion of Lt.-Col. Jennings (seconded by Capt. Gordon Tucker) it was resolved to add the following names suggested by this Sub-Committee to the list of those already invited to contribute in the subjects mentioned, viz.,—

Cholera.—Dr. A. Balfour.

Dysentery.—Dr. Elliott and Messrs : Kruse and Kesserich.

Enteric Fever.—Lt.-Col : Collie, I. M. S., and Lt.-Col : Burke, I. M. S.

Tropical Diarrhæas.—Lt.-Col : Childe, I. M. S., Lt.-Col : Hojel, I. M. S. and Lt.-Col : Lyons, I. M. S.

Malaria.—Professor Thayer and Lt.-Col : Arnott, I. M. S.

Kala Azar.—Lt. Col : Meyer, I. M. S., Capt : Patton, I. M. S. and Major Leonard Rogers, I. M. S.

Plague.—Capt : Liston I. M. S., Dr. Choksey, Major Browning Smith, I. M. S., Capt : Gloster, I. M. S., and Lt.-Col : Bannerman, I. M. S.

Relapsing Fever.—Capt : Mackie, I. M. S., and Dr. Choksey.

Parasites.—Dr. S. Powell, Dr. Boycott and Dr. Looss.

Snake Venoms.—Sir Lauder Brunton.

Beri-beri.—Dr. Braddon and Dr. Axel Host.

Mycetoma.—Dr. Surveyor and Dr. Bocarrò.

Leprosy.—Dr. Turkhud, Major F. A. Smith, I. M. S. and Dr. Black.

Elephantiasis.—Colonel Kenneth Mc Cleod, I. M. S.

Ophthalmic Surgery.—Major Smith, I. M. S., Major Elliott, I. M. S., Lt.-Col : Maynard, I. M. S., Lt. Col. Herber, Major Kilkelly, I. M. S., and Dr. Prabhakar.

Vesical and Renal Calculi.—Major Street, I. M. S., Lt.-Col : Durrell Pank, I. M. S., Lt.-Col : Freyer, I. M. S., Col : Hume Henderson, I. M. S., Lt.-Col : Hatch I. M. S., Lt.-Col : Stevenson, I. M. S., and Lt.-Col. Keegan, I. M. S.

Miscellaneous Tropical Surgery.—Lt.-Col : Wellington Gray, I. M. S., the Senior Surgeons Medical Colleges of Lahore, Calcutta and Madras, Major Evans I. M. S., Major V. B. Bennnett, I. M. S., Dr. Masina and Major Hooton, I. M. S.

5 & 6. —*Question of Conversazione and rules for admission thereto and to the Congress.*—On the motion of Lt.-Col : Jennings (seconded by Dr. Goldsmith) it was resolved unanimously that it be recommended to the Central Committee that a *conversazione* be held on the second night of the Session in the Exhibition grounds ; that the lantern slide demonstrations be held in connection with that function ; and that the General Secretary be asked to invite tenders (by letter) from different purveyors as to the terms upon which they would cater for the entertainment and for providing refreshments generally for the Congress Session and Exhibition, such tenders to be considered and disposed of by the Executive Committee. On the same motion it was resolved that the following be recommended as rules for admission to the Congress and Exhibition, viz. :—

(a) That holders of white tickets (*i. e.* Medical Donors of ten rupees and over and Lay Donors of twenty rupees and over) have free admission to all parts of the Congress and Exhibition during the whole of the Session and to the Exhibition for one week thereafter.

(b) That no extra charge be made to holders of white tickets for attending the *Conversazione*.

(c) That holders of Red Tickets (free tickets given to holders of recognized Medical Qualifications only on application to the General Secretary) will have free admission to all Sections excepting the Exhibition Section during the whole of the Session ; free admission to the Exhibition Section being only permitted on the last two days of the Session.

(d) That holders of Red Tickets will be admitted to the Exhibition Section on the first day only on payment of admission charges of Two Rupees per head, and on the second day only on payment of admission charges of Three Rupees per head, the latter to include attendance at the *Conversazione* and Lantern Slide Demonstrations.

(e) That holders of Red Tickets be only admitted after the Session to the Exhibition on payment of admission charges payable by the General Public.

(f) That the following be the charges payable by the General Public for admission to the Exhibition, viz., One rupee per head (children, and sailors and soldiers in uniform half price.)

Weekly tickets (not transferable) at Five Rupees per head (children, and sailors and soldiers in uniform half price).

(g) That no member of the General Public (excepting holders of white tickets) be admitted to the Exhibition during the Session.

N.B.—The General Secretary was asked to submit these proposals to the Central Committee for consideration.

(a) Lt.-Col. Jennings proposed (and Sir Bhalchandra Krishna seconded) that in future the Executive Sub-Committee meet monthly (unless otherwise summoned) at 5-30 P.M. in the University Library on the First Tuesday of each month.

(b) On the motion of Sir Bhalchandra Krishna (seconded by Dr. Choksey) it was resolved that the General Secretary be authorized to write and thank all those offering Voluntary Contributions in the subjects it is proposed to discuss and to request them to send copies of their papers not later than the 15th of December 1908 to the General Secretary who will hand them over to the Sub-Committee appointed for scrutinizing and reporting upon such.

The Meeting was then adjourned to the First Tuesday in August the General Secretary being asked to send reminders on Post Cards to Members.

Proceedings of Fifth Central Committee Meeting held in the Bombay University Library on Tuesday the 7th July at 6 p.m.

Colonel Forman A.M.S., (Presiding), Colonel Robinson, A. M. S., Lieut : Col ; Collie, I. M. S., Major Winter, R. A. M. C., Dr. Temulji Nariman, Sir Bhalchandra Krishna, Captain Gordon Tucker, I. M. S., Dr. Choksey, Dr. Rajaballi Patel, Miss Benson, Dr. Goldsmith, Lieut : Lafond, Asst : Surgn MacQueen, Dr. Shroff, Dr. Modi, Lieut : Col : Jennings. (General Secretary).

The Notice convening the Meeting was read.

The Minutes of the previous meeting were read and confirmed.

(a) The General Secretary announced that he had received replies from all those invited to serve on the Central Committee, and that all had accepted office excepting the Inspector General of Hospitals, United Provinces, who asked to be excused on the grounds of not being able to attend the Congress, at the same time thanking the Committee for having invited him.

(b) Of the associations invited to nominate representatives, the Bombay Medical Union had nominated Dr. B. S. Shroff. The replies of the Grant Medical College Society and the Bombay Branch of the British Medical Association were still awaited.

(c) It was then unanimously resolved on the motion of Col : Forman, (seconded by Sir Balchandra Krishna) that the Sanitary Commissioner in India be invited to serve as a Vice-President ; and on the motion of Lt.-Col : Jennings (seconded by Colonel Forman) that Lt.-Col : Childe, I. M. S., be invited to serve on the Committee as representing the Faculty of Medicine in the Bombay University ; the General Secretary being asked to issue the invitations.

(d) It was further resolved on the motion of Col. Forman, (seconded by Lt.-Col : Collie) that the Association of Medical Women in India be asked to nominate a representative from among Indian Lady Graduates. Miss Benson, the President of the Association being present promised to arrange about the matter.

(a) On the motion of Col : Forman (seconded by Dr. Temulji Nariman) it was resolved that the largest of the models produced by the General Secretary be adopted as the size, the General Secretary being asked to try and arrange, if possible, for the circumference being increased and the thickness diminished for the price quoted, and to negotiate with the Master of the Mint as to preparation of the die.

(b) On the same motion it was resolved that the design on one face of the medal should be that marked 3 of the designs produced by the General Secretary (the roofs of the University Buildings with the Clock Tower).

(c) On the motion of Miss Benson, (seconded by Colonel Robinson) it was resolved that a small sub-committee be appointed to select a suitable medical design for the other face. Lt.-Col : Jennings proposed (and Col : Forman seconded) that this Sub-Committee should consist of Miss Benson, Colonel Robinson and Major Winter. This was carried unanimously.

The General Secretary read report of the Executive Sub-Committee suggesting that a *Conversazione* be held on the second night of the Session in the Exhibition grounds ; that the lantern slide demonstrations be held in connection with that function ; and that the General Secretary be asked to invite tenders (by letter) from different purveyors as to the terms upon which they would cater for the entertainment and for providing refreshments generally for the Congress Session and exhibition ; such tenders to be considered and disposed of by the Executive Sub-Committee. On the motion of Col : Forman (seconded by Dr. Choksey) it was unanimously resolved that the above suggestions be adopted.

It having been ascertained that the 22nd, 23rd, 24th and 25th of February 1909 would be suitable dates to His Excellency the Governor (President of the Congress) it was resolved on the motion of Lt.-Col : Collie, (seconded by Sir Bhalchandra Krishna) that the Session be held upon those dates.

The General Secretary read the following suggestions of the Executive Committee relative to the proposed rules for admission to the Congress and Exhibition, viz :—

(a) That holders of white tickets (*i.e.* Medical Donors of ten rupees or over and Lay Donors of twenty rupees or over) have free admission to all parts of the Congress and Exhibition during the whole of the Session, and to the Exhibition for one week thereafter

(b) That no extra charge be made to holders of white tickets for attending the Conversazione.

(c) That holders of Red Tickets (free tickets given to holders of recognized Medical Qualifications only on application to the General Secretary) will have free admission to all Sections excepting the Exhibition Section during the whole of the Session; free admission to the Exhibition Section being only permitted on the last two days of the Session.

(d) That holders of Red tickets will be admitted to the Exhibition Section on the first day only on payment of admission charges of two rupees per head, and on the second day only on payment of admission charges of three rupees per head, the latter to include attendance at the Conversazione and Lantern Slide Demonstrations.

(e) That holders of Red Tickets be only admitted after the Session to the Exhibition on payment of admission charges payable by the General Public.

(f) That the following be the charges payable by the General Public for admission to the Exhibition, viz., One rupee per head (children, and sailors and soldiers in uniform half price.) Weekly tickets (not transferable) at Five Rupees per head (children, and sailors and soldiers in uniform half price).

(g) That no member of the General Public (excepting holders of white tickets) be admitted to the Exhibition during the Session.

(a) On the motion of Lt.-Col: Jennings (seconded by Col: Forman) Miss Benson was elected as a member of the Executive Sub-Committee.

(b) The General Secretary announced that the Authorities of the Bombay University had kindly placed the University Buildings at the disposal of the Central Committee for the Session; and it was resolved, on the motion of Col. Forman, (seconded by Dr. Goldsmith), that the General Secretary be asked to thank the University Authorities for their great kindness.

The Meeting was then adjourned *sine die*.

THE ANTISEPTIC.

AUGUST, 1908.

Sanitary Work in the Madras Presidency.



We always go through records of sanitary work with interest. On more than one occasion we have called attention to the increasing importance of sanitary reform in this country. Perhaps one of the greatest difficulties to be overcome is the comparative indifference of the bulk of the population to questions of general sanitation—questions with regard to which every man and woman must seek to obtain some practical knowledge. On a former occasion we dealt with the question of funds and the necessity of organisation and dissemination of the root principles of sanitation. It is a satisfaction to us to know that almost every report of sanitary work accomplished shows progress in several of these directions. The Forty-fourth Annual Report of the Sanitary Commissioner with the Government of Madras has just been published. It relates to, and records, the work done in 1907. We have no space here to dwell upon all the features of the report. We shall direct attention to a few facts embodied in the report. We have said that considerable indifference or ignorance prevails on many of the questions connected with sanitation. Now, take the registration of vital statistics in the Presidency during the year 1907. What do we find? Here is a passage from the report:—"The machinery employed for the registration of vital statistics both in urban and rural areas and the method adopted for the collation and tabulation of the results secured have undergone no change. Act III of 1899 was brought into operation in 4 towns and villages in addition to the 703 towns and villages mentioned in the report for 1906. Both in numbers and in terminology registration in rural areas is far from accurate. The new combined scheme of compulsory vaccination and compulsory registration that has been tried this year in some districts will, it is hoped, improve this state of affairs when it is applied throughout the province. In the matter of enforcing registration in mofussil Municipalities 1,427 prosecutions were instituted which resulted in 1,305 convictions with an aggregate fine of Rs. 845."

Now, we are not in love with punitive methods. If by gentle persuasion and by free education, the people can be made to understand the value and the advantages of the registration of vital statistics, nothing, in the present stage of our development, can be more satisfactory. But the facts now revealed show in what a backward condition we are. Before we leave this subject we may give some figures which are not without significance. Turning to the birth-rate in the districts of the Madras Presidency we find that it was 30.8 per mille, being 0.1 less than the previous year and 1.1 above the decennial average. There was an increase in 7 districts, of which Nellore, Chingleput, North Arcot and Madras showed an excess of 7.2, 6.2, and 2.5 respectively. But these variations and differences are often the result of improved registration. The deaths registered during the year amounted to 24.3 for mille of the census population under registration as compared with 27.4 per mille in 1906. Excluding Madras, which recorded a death rate of 40.8, the highest rates were produced by South Canara (36.8) and Malabar (36.7) followed by South Arcot (30.1), the Nilgiris (28.6) and Tanjore (28.0). The lowest were returned by Madura (18.3), and Nellore (18.4). What is noteworthy in these figures is the death-rate in Madras, which is indeed appalling. Madras is the centre of light where the sanitary arrangements may be said to be more efficient than elsewhere, and yet we have the sad fact that the death-rate is highest in Madras. In Municipal areas the general birth-rate was 36.3 against 36.4 in 1906 and 36.0 the quinquennial average. The highest birth-rate was recorded in Vaniambadi (57.8). The death-rate for Municipal towns averaged 33.4 per mille against 38.3 in 1906 and 34.5 the five-year average, the decrease, we are told, occurring chiefly under cholera, small-pox, dysentery and diarrhoea.

During the year under report the mortality from cholera amounted to 2.2 per mille against 3.9 in the previous year. There were variations. For instance Malabar suffered most with a death-rate of 8.5. One regrettable fact is that no district was spared. It is satisfactory to note that attempts were made for spreading ideas about the rules for combating cholera. But upon this the information furnished is rather meagre. As we said on a former occasion, whatever may be the efforts put forth by the department concerned, if the people remain passive and indifferent without organised work on their part, epidemics such as cholera and small-pox, &c., would carry off their victims in large numbers. Like cholera small-pox also prevailed in all the districts. We are told that until vaccination is made compulsory in rural areas the inroads of small-pox would continue. The Sanitary Commissioner hopes "that the introduction

"throughout the presidency of the revised scheme of vaccination, which presupposes compulsion in this respect, will secure the end in view." It is a regrettable circumstance that a total of 2,872 deaths was returned under plague against 898 in the preceding year. Nine districts were completely free. In 6 a few imported cases were reported. In the remaining 8 districts from which indigenous cases were reported, in Bellary the death-rate was 1.7, in the Nilgiris 0.5, and in Salem 0.4. The rates in all other districts were less than 1 per mille. But the disease was present all the year round in Salem and South Canara. Under fevers the death-rate in 1907 was 7.8 as against 8.4 per mille in the previous year. Dysentery and diarrhoea claimed a less number of victims. Under all other causes the death-rate was 10.9 in 1907 as against 11.6 in the year previous. Not less than 50 per cent. of the deaths were under this unspecified head.

With regard to sanitary works we may note only what was done in Municipal areas. In the districts nothing noteworthy was done. We are not aware that much good has come out of the maintenance of village sanitary inspection books, though we admit them as a source upon which we may draw for the purpose of dealing with the general sanitary situation in the Presidency. With respect to sanitary works in Municipal areas we may quote what the Sanitary Commissioner has to say. In the course of his remarks on sanitation in Municipalities he says:—

"There can be no doubt that there is an evident desire on the part of Municipal Councils to act upon advice given and to place the towns in as good a sanitary condition as funds at disposal can permit. But the most serious drawback is the paucity of funds in consequence of which sanitary efforts in most Municipalities are confined to the carrying out of works of a petty nature, except where Government has subsidized Municipal funds with grants for the execution of water supply and drainage schemes. Excluding such towns, the sanitary works executed during the year consisted in the construction and repair of latrines, markets, slaughter houses, drains; the improvement of existing sources of water supply by cleaning and repairing wells, and tanks; the improvement of the conservancy staff and plant, and the like. The sources of drinking water supply, where a protected supply did not exist, were very much the same as in previous years, *viz.*, wells, tanks, rivers, irrigation channels, etc., subject as usual to all manner of contamination. Efforts, no doubt, are made to conserve these as far as possible, but at best these can only be palliative. Up to date 17 towns have been given the benefit

of a protected water supply, but the full sanitary effect of these cannot be realised owing partly to the existence, side by side with the public supply, of old, objectionable sources of drinking water which the people continue to use on account of some quasi-religious objections to abandon the former habits. Similarly the condition of drainage both in regard to storm and sullage water is very unsatisfactory. With the exception of Madras, no town possesses a comprehensive drainage system, although schemes were under consideration in some of them. In the absence of these two most important factors, it is hopeless to expect sanitation to make much headway in disease prevention."

In the future these problems are to be dealt with on the lines indicated by us in a previous issue of this journal.

BOOK REVIEW.

We have received a copy of E. Merck's Annual Report for 1907, Vol. XXI. It is an impartial review of recent advances in Pharmaceutical Chemistry and Therapeutics. It is a very useful hand book for practitioners, and we commend it to our readers. Copies can be had on application to E. Merck, Darmstadt.

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Original Articles.

* THE PROGNOSIS OF DIPHTHERIA.

BY

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THE general employment of antitoxin in diphtheria has so much modified the course of the disease that the prognosis at the present day has to be determined by other considerations than those which guided the physician prior to the introduction of this treatment in 1894. The impossibility of preventing the disease spreading to the larynx, the rarity with which laryngeal cases recovered without operation, and the high mortality from tracheotomy, made the prognosis in the pre-antitoxin era much more sombre than at present. Prior to 1894 secondary diphtheria, i.e., diphtheria supervening upon another acute disease, especially scarlet fever, was attended with a very high mortality. Lastly, the excess of mortality during the winter months was much higher than at present. With the introduction of antitoxin, not only have the frequency and mortality of laryngeal cases fallen considerably, but the number of laryngeal cases in which operation is necessary has been greatly reduced, and the recovery rate after tracheotomy or intubation enormously increased. The great reduction in the mortality of laryngeal cases is shown by the following figures taken from the Metropolitan Asylums Board's Reports. In 1894 the mortality of laryngeal cases was 62.0 per cent. In 1895, the first antitoxin year, it had fallen to 41.8, and in 1905 to 18.1. The recovery rate from tracheotomy is now almost as great as was previously the mortality from that operation. In 1894 the tracheotomy mortality for diphtheria was

* Specially contributed to *The Antiseptic*.

70·4 per cent. In 1895 it had fallen to 49·3, and in 1905 to 27·6. In 93 personal cases the mortality was 19·3 per cent.

The diminished frequency of laryngeal diphtheria after the introduction of antitoxin is shown by the fact that in 1894 three times as many cases developed croup after admission to hospital as in 1895 or 1896. The prevention of laryngeal symptoms by antitoxin is further proved by the fact that out of 1,500 cases of diphtheria which have been under my care during the last six years, no single case which was not laryngeal on admission subsequently developed laryngeal symptoms.

Secondary diphtheria is now no longer such an alarming disease as it was before the introduction of antitoxin. Of 482 cases recorded in the Metropolitan Asylums Board's Reports for the years 1890—1894 the mortality for post-scarlatinal diphtheria was 50 per cent. In some hospitals it exceeded 70 per cent., whereas during the years 1899—1906 in 2,774 cases of post-scarlatinal diphtheria the mortality was only 3·4 per cent. The average case mortality for each quarter during the last 7 years shows that there is only a slight excess of mortality in the cold months, as is seen by the following figures: 1st quarter 11·62 per cent.; 2nd quarter 8·97 per cent.; 3rd quarter 8·92 per cent.; 4th quarter 10·96 per cent.

In discussing the prognosis of diphtheria at the present day the most important considerations are: (1) The age of the patient; (2) The date of the disease at which the antitoxin was given; (3) The presence of any features of malignancy; (4) The reaction to antitoxin; (5) Visceral changes; (6) Paralysis.

1. *Age*.—As in the pre-antitoxin era the question of age is still of great importance for determining the prognosis. During the first year of life the morbidity from diphtheria is low, but the mortality is high. Thus of 12 patients below the age of one year among my 1,500, 6 died. During the succeeding years the morbidity rises, but the mortality falls until by the third quinquenniad it is usually *nil*.

TABLE I.

Showing the morbidity and mortality at different age periods among 1,500 cases.

Ages	Number of patients.	Deaths.	Percentage mortality.
0—5	538	65	12·08
5—10	694	48	6·9
10—15	141	3	2·8
15—50	127	0	·0

Sex is of much less importance than age in regard to prognosis, but most authorities are agreed that the greatest fatality is among the female sex. Of my 116 fatal cases 46 or 6·4 per cent. were males, and 70 or 8·8 per cent. were females.

2. *Date of disease*.—Even before the employment of antitoxin, authorities used to lay stress on the importance of instituting treatment at as early a date as possible. However, in those days, even when the case came under treatment on the first day, the mortality was comparatively high. Thus out of 133 first day cases admitted to the Metropolitan Asylums Board hospitals in 1894, 30 died, a mortality of 22·5 per cent. The following figures show that under antitoxin treatment the mortality of first day cases is *nil*, and that the mortality rises gradually with each day, until after the fifth day, when there is a slight fall.

TABLE II.

	Total number of cases.	Deaths.	Percentage mortality.
1st day cases	62	0	0
2nd „ „	324	10	3·08
3rd „ „	391	24	6·1
4th „ „	309	33	10·6
5th „ „	203	26	12·8
6th „ and later	211	23	10·9

Though the early administration of antitoxin cannot be too strongly advocated, the treatment should be adopted even in late cases in which membrane is present. Comparison of the above figures with those of the pre-antitoxin era proves that even tardy treatment is better than abstention.

3. *Indications of malignancy*.—The following are the principal signs of a malignant attack:—

(a) *FAUCIAL OEDEMA*.—In an ordinary case of diphtheria there is but little faucial inflammation, whereas in severe cases the fauces and palate assume a succulent appearance, resembling that found in quinsy. All degrees of inflammation may be met with. Not unfrequently the oedematous uvula is thrust forward into the buccal cavity.

(b) *NASAL INVOLVEMENT*.—The gravity of nasal diphtheria has long been recognised. TROUSSEAN, indeed, exaggerated its untoward significance as HENOCH and CADET DE GASSICOURT subsequently pointed out.

The character of the rhinorrhœa is important. As I have shown elsewhere (Metropolitan Asylums Board's Reports 1906) nasal discharge may,

occur as a very early symptom in mild cases and cease without treatment. Rhinorrhœa of this kind is usually watery in character and slight in amount. Much more ominous is a profuse thick and sanious discharge which usually develops at a later date. In the severest cases membrane may sometimes be seen within the nostrils without the aid of a speculum and the exudation may reach the muco-cutaneous junction. The gravity of nasal involvement is illustrated by the fact that, while the mortality among my faucial cases was only 3·5 per cent., among my faucial and nasal cases it was 19·2 per cent. (Intercurrent diseases caused three deaths, two being due to scarlet fever and one to congenital syphilis. Thus the total deaths among the 1,500 cases were 116—a mortality of 7·7 per cent). The deaths among 194 laryngeal cases, in which are included laryngeal cases with faucial or nasal involvement, amounted to 25, a mortality of 12·8 per cent. These figures show that nasal involvement in faucial or laryngeal diphtheria is more serious than faucial or laryngeal diphtheria, either alone or in combination. Purely nasal diphtheria is a mild disease. Ten such cases occurred among my 1,500. All recovered without complications.

Profuse epistaxis may occasionally occur, and though it is not of such evil importance as the skin hæmorrhages to which allusion will be made later, it is a mark of a malignant attack.

(c) GLANDULAR INVOLVEMENT.—Of more importance than the extent of the membrane is the enlargement of the sub-maxillary and cervical glands together with the infiltration of the peri-glandular tissue. In extreme cases the neck of a child may equal in circumference that of an obese adult. The resemblance caused ST. GERMAIN to adopt the expression *proconsular neck*. Not unfrequently the skin pits on pressure from the occiput down to the chin, and assumes a dusky red appearance. It is very exceptional, however, for suppuration to occur.

(d) ORAL FŒTOR.—This sign was well-known to the Spanish physicians of the XVIIth century as will be seen from their description of the prevailing epidemic of diphtheria then known by the name of *garotillo* or morbus strangulations.

Even in cases of moderate severity the trained nose can frequently detect a peculiar odour, which in severer cases becomes much more obtrusive. Persistence and aggravation of such fœtor after repeated large doses of antitoxin and local treatment are *signa pessimi ominis*.

The odour is *sui generis*, being quite distinct from the fœtor of *Vincent angina* or of *scarlatina anginosa*.

(e) PURPURA.—In every severe case of diphtheria, especially in children, one should not be content with an examination of the throat. It is also very important to examine the skin for the presence of hæmorrhages. The occurrence of skin hæmorrhages, though not an absolutely fatal sign as some authorities maintain, is of very unfavourable augury, and is an indication of profound intoxication. Of 73 of my cases that presented skin hæmorrhages 61 died, a mortality of 83·5 per cent., while all the 12 who recovered suffered severe paralysis.

4. *Reaction to Antitoxin*.—In a previous paper in *The Antiseptic* (March 1907, p. 120) I dwelt on the prognostic importance of the semen phenomena, and stated that malignant cases are very slow in responding to specific treatment. The extensive membrane, and faucial œdema, adenopathy and rhinorrhœa often remain unaffected for some days in spite of large doses of antitoxin. The characteristic skin changes due to semen, *viz.*, perspiration, urticaria and circinate erythema are ill-marked or entirely absent. Conversely, it may be regarded as a favourable sign in a severe case when the local phenomena rapidly subside, the skin becomes moist and a well-marked urticarial rash develops.

5. *Visceral changes*.—On subsidence of the acute symptoms, which in severe cases is usually four to six days after the injection of antitoxin, (*vide* Author's Paper in *Antiseptic*, November 1906, p. 456) the prognosis should still be guarded, especially during the first fortnight of the disease in every severe case. During this time cardiac paralysis is most likely to occur. Among 56 cases of cardiac paralysis the average date was the eighth day. Though some degree of cardiac disturbance was found in many cases after the 14th day, none of these were fatal.

Cases of sudden and unexpected death occurring in convalescence from diphtheria, on which great stress is laid in text books, I have not yet met with. This I attribute to the fact that all cases that show marked cardiac lesions I have kept recumbent in bed till the end of the seventh week, after which time they may be safely allowed up. Daily examination of the heart should be made during the first fortnight. Weakening of the first sound at the apex, and still more the onset of a triple rhythm during this period are of very grave significance. Associated with commencing cardiac paralysis, occasionally preceding it, is a progressive enlargement of the liver. The prognostic significance of this sign, on which I have dwelt at length elsewhere (M. A. B. Reports 1904), is shown by the fact that the mortality of the 83 cases presenting this sign was 57·8 per cent. as compared with a case mortality of 7·7 per cent. among the 1,120 cases in whom this sign was investigated.

Another sign often associated with fatal cardiac paralysis is an early involvement of the palate as manifested by a nasal twang of the voice and less frequently by regurgitation of fluids through the nose. The prognostic importance of precocious palatal palsy is shown by the fact that the mortality of cases which exhibited this phenomenon was 35.8 per cent. as contrasted with a mortality of 1.4 per cent. among the cases in which palatal palsy occurred after the end of the first fortnight. Albuminuria in diphtheria has no longer the grave significance that certain authorities of the pre-antitoxin era, *e.g.*, Sir W. JENNER, considered it to possess. It may be present though usually only in slight degree, and for a short time in quite mild cases, while in some severe cases it may be absent. As a rule, however, a definite relation exists between the severity of the initial attack and the amount and duration of albuminuria. This is shown by the fact that, whereas the percentage of albuminuria in my severe cases was 79.7, in mild it was only 32.2.

6. *Paralysis.*—The frequency and severity of diphtheritic paralysis bear a direct relation to the character of the initial angina, so that in most cases (it is possible to foretell which cases) will suffer paralysis and which will escape. Most diphtheritic paralysis are benign in character, complete recovery without sequelæ occurring in a few weeks. Chronic diphtheritic paralysis is so rare that there are only 8 cases recorded in literature. (Review of Neurology, 1907, p. 56.) Three forms of diphtheritic paralysis, however, form an exception to the general rule in that the prognosis is very grave.—

(1) Cardiac paralysis, which has already been discussed. (2) Paralysis of the pharynx and diaphragm. 3. Hemiplegia.

Paralysis of the pharynx and diaphragm. The paralysis of the muscles of the pharynx either alone or in association with the diaphragm is always a late event, occurring from the fifth to the seventh week. It is rarely met with except after a severe angina. The danger lies in the possibility of broncho-pneumonia or asphyxia. Owing to the liability of these paralysees to occur it is always advisable to reserve the prognosis in a severe case of diphtheria until after the seventh week has passed.

Hemiplegia differs from diphtheritic paralysis, properly so called, in that it is usually the result of a vascular lesion, especially embolism. It is a rare occurrence. In 1905 (Review of Neurology, 1905, p. 722) I could find only 65 cases recorded in literature. The prognosis in such cases is good as regards life, since 43 recovered, but bad as regards complete recovery. It occurred in only four cases. Contractures, athetosis, chorea, and imbecility are among the sequelæ.

The prognosis of laryngeal diphtheria requires special consideration. In laryngeal cases, especially in those severe enough to necessitate surgical interference, the faucial exudation is usually slight in degree. Thus in my 93 cases of tracheotomy which occurred among 1,500 cases, in only 19, *i.e.*, in less than a quarter, was the faucial attack severe. The risk of subsequent paralysis after mild faucial diphtheria is very slight, and the prognosis almost entirely depends upon the extension of the disease to the lungs. Owing to the great difficulty attending the interpretation of physical signs in a tracheotomised case more help can be gained by consideration of the temperature, pulse respiration and general condition of the patient than by examination of the chest. After the injection of antitoxin as a rule the temperature in diphtheria soon falls. Persistence of pyrexia, especially if associated with a pulse above 120 and respirations above 40, indicates pneumonia, generally lobular in type. Restlessness, a dry skin, and a leaden colour of the lips, especially accompanied by a dry condition of the tracheotomy tube, almost always herald a fatal termination. On the other hand little anxiety need be felt for the patient who sleeps well, has a moist skin and a rosy colour, whose pulse and respiration do not exceed 20 and 40 respectively, and whose temperature is normal or but slightly raised. In this connection it is noteworthy that the temperature has very little prognostic value in faucial diphtheria, in which the subsidence of pyrexia to normal is no guarantee that cardiac paralysis will not shortly occur.

* SOME REMARKS ON ANÆSTHETIC EMERGENCIES IN DENTAL SURGERY.

BY

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During the course of his professional career every dental surgeon who carries on a practice which includes "operative work" under general anæsthesia is bound to meet from time to time with certain abnormalities in his patient or in the anaesthesia which cause him no inconsiderable anxiety for the time being.

The dental surgeon of experience will, as a matter of course, cast his professional eye over the physique of each new patient and may, without exactly being a SHERLOCK HOLMES, readily detect conditions which will call for caution and, very properly, enquiry of the patient's ordinary medical attendant. Anæmia, mitral disease, exophthalmos and apoplectic tendency offer no great difficulty in their recognition. Although in hospital practice and the lower grades of private practice it may be very difficult

* Specially contributed to "The Antiseptic."

or impossible—as a general rule—any dentist taking on a new patient especially for operative work should ask for a note from the ordinary medical attendant stating whether the patient is in good health or otherwise. Unfortunately cases are by no means unknown where the patient has been aware that he or she is suffering from cardiac disease, &c., and has, probably through the dentist having failed to enquire, not made him aware of the condition and he has only become so by being so informed by the patient's doctor at the Coroner's Inquest.

In spite of all precautions, however, it will be the fate of almost every one engaged in dental practice to be confronted from time to time with an emergency case of some sort in the operating room. Among the most important and likely of these are hysterical fits, epileptic seizure, apoplexy, fainting and syncope and asphyxia from mechanical obstruction of the air way or anæsthetic complications. It is with the last two conditions that I propose to deal chiefly but, *en passant*, one may say a word or two about the others.

The average man will only be too ready to hand over a case of bad hysteria to the nearest medical colleague and that is certainly the best thing that could be done—and as soon as possible.

Of course I do not here mean simply a case of hysterical weeping or excitement—but rather the condition of hystero-epilepsy.

A patient taken with an epileptic fit should be immediately laid on the back, in the supine position, and the collar being removed and clothing loosened a cork or gag of some description should be placed between the teeth to prevent the tongue being bitten. The nearest doctor should be sent for without delay.

In case of apoplexy the patient should be treated in much the same way, but here perhaps, to occupy the time well while the doctor is *en route*, the dentist might apply mustard plasters to the soles of the patient's feet or put the feet in a shallow foot bath containing water of a temperature such as he can suffer when his own hand is fully immersed in it.

FAINTING AND SYNCOPÉ.

However it arises syncope usually occurs very suddenly, the only preliminary signs being sudden pallor and dilatation of the pupil.

We may look for it in the pale and anæmic, in those who are debilitated and recovering from a long illness, in patients known to suffer from cardiac mischief or who are possessed of a highly nervous temperament.

We are all familiar with the appearance of a person who has fainted, indeed, and the signs exhibited in syncope only differ in degree and the

former may readily pass into the latter. The pulse is feeble and fluttering, there is intense pallor, the limbs are relaxed, the pupils dilated, there is cold clammy perspiration, feeble shallow respirations sometimes dying away completely.

In the syncope arising during the course of anæsthesia of nitrous oxide or "gas and ether" the signs and symptoms are but slightly altered, the change in colour of the face is not so marked or has more of the ashy hue of death owing to pre-existing lividity.

With ethyl chloride we have sudden pallor, feeble respiration or arrest and spasm of the muscles with dilated pupils—but asphyxial symptoms are often present also and overlap the syncopal signs.

The alteration in the character of the breathing is marked and from being quick and sometimes noisy or stertorous, the respirations completely disappear or become very shallow.

During chloroform anæsthesia syncope may occur with lightning-like rapidity, pupils dilate, and pulse and respiration cease practically simultaneously.

Treatment.—The patient, if not already in this position should at once be placed on his back with the head lower than the body and feet hanging over the end of the couch or table. The mouth should be opened, tongue drawn well forward with a forceps and the chest rhythmically compressed.

Fresh air should be admitted by the doors and windows. A capsule of nitrate of amyl should be cracked and held to the nostrils, or a little strong ammonia on a glass stopper similarly applied. All clothing hampering the chest and abdomen should, of course, be removed, and the chest or face smartly slapped with a wet towel or napkin. In the very large majority of cases fortunately the above treatment properly carried out will suffice to restore the breathing and circulation, the patient then merely requiring to be kept warm and have a free supply of fresh air. If these efforts are unavailing, however, you must be by no means discouraged but immediately resort to efficient and, if needed, prolonged artificial respiration.

The best and most commonly employed method of artificial respiration is SYLVESTERS.

The patient lying on the floor or table, a pillow or folded coat should be placed underneath the shoulders so that the head hangs down while the neck is extended.

Keep the tongue well forwards the whole time; this may be effected by means of a simple rubber band over the tongue and under the jaw or by means of a tongue-forceps held by an assistant.

The operator should stand behind the patient, grasp the arms about midway between the shoulders and the elbows, and press them firmly into the sides of the thorax, rotating them, at the same time, outwards; this position should be maintained for a couple of seconds, the assistant forcing the diaphragm up by pressure on the abdomen meanwhile; the arms should then be steadily drawn upward and outward until they meet above the head slightly lifting the patient from the ground and at the same time the assistant releases the diaphragm.

The downward movement is then repeated, and so on upwards and downwards at the rate of about eighteen movements to the minute.

If an electric battery is at hand, and in working order, it may be used by an assistant as an auxiliary measure, one electrode being applied at the sternal notch and the other over the cardiac region. Cold and hot water should be dashed alternately over the chest and then a friction towel applied vigorously.

If any sign of returning animation be given the restorative effort should be redoubled, the lips and gums may be rubbed in a napkin dipped in brandy, and at the same time hot bottles and mustard plasters applied to the feet, the whole body should be kept warm and an ounce of beef tea or brandy and water injected into the rectum. The efforts should on no account be relaxed until the ordinary respiratory movements and the pulse have become quite regular once more, and the patient, even then, must be very carefully watched.

ASPHYXIA.

Signs and symptoms.—Increasing duskiness, violent respiratory efforts and gradual pulse failure.

Mechanical obstruction is almost invariably the cause of asphyxia occurring during the course of nitrous oxide or ether anæsthesia for dental work. With ethyl chloride it can be readily produced merely by a slight overdose. In many cases asphyxia occurs during the stage of recovery and is signalled by the recurrence of cyanosis and lividity. It is obvious what an important factor in preventing this untoward symptom is care in sponging and preventing undue hæmorrhage, and further the removal of every loose fragment of tooth or alveolus from the patient's mouth. It is, of course, of great importance to get the patient restored to consciousness as rapidly as possible once the operative work is completed,

and in cases where the patient is recumbent with the head tilted back to see that the tongue does not fall back and occlude the larynx.

SIGNS OF COMMENCING ASPHYXIA.

Increase or return of lividity which rapidly extends all over the surface of the patient's body, gasping or struggling for breath terminating in actual convulsions and cessation of respiration.

The violent inspiratory efforts, as well as the non-oxygenation of the blood, acting as cardiac depressants, and the heart's action becomes seriously impeded and finally ceases altogether.

It must be borne in mind that the actual movements of the chest may continue in spite of the occlusion of the larynx, and we must therefore rely only on the audible respiratory sounds for evidence that the air is entering the lungs.

Treatment of Asphyxia.—If there is a stray tooth, mouth prop blood, mucus or vomitus in the mouth, a finger should at once be inserted and swept around the buccal cavity to endeavour to find and remove it and so prevent by any chance its slipping back into the larynx.

Personally I regard this as the greatest risk incurred in ordinary tooth extraction, but any difficulties which arise in this connection are usually much more easily dealt with than a tooth which has slipped down the air passages and which may cause immediate spasm of the glottis and asphyxia necessitating a prompt laryngotomy or tracheotomy and possibly terminating in a long and painful illness of the nature of chronic septic pneumonia or gangrene of the lung. I have often trembled at the haphazard way careless extractors—often, I regret to say, students—have left teeth or portions of teeth lying loose about the mouth and have even re-inserted with forceps portions of tooth or alveolus sticking to them.

To endeavour to prevent trouble from this cause CARTER introduced his oral net spoon for the purpose of guarding the laryngeal opening during the extraction of teeth. Lower bicuspid teeth most commonly spring out of the forceps so that additional care should be taken in removing them from the socket.

If the foreign body giving rise to symptoms is in sight or within reach, an attempt should be made to remove it with the finger or with a throat-forceps. Failing this the patient's head and shoulders should be lowered and efforts made to excite the laryngeal reflex by drawing forward the epiglottis by means of a bent tongue-depressor or forceps.

The offending body may be rapidly expressed by coughing and complete relief be afforded or the dyspnoea may pass off sudden owing to the position of the foreign body being altered.

On the other hand if the dyspnoea increase immediate relief will be called for by means of tracheotomy or laryngotomy.

If the respiratory difficulty is due to thick tenacious mucus sticking about the pharynx the patient's head should be bent forwards and he should be encouraged to cough—and smacked on the back.

If this fails a coarse dry sponge on a handle should be thrust well back into the pharynx and rapidly withdrawn with a sweeping movement. If this be done the operator should be quite clear so that the obstruction is not due to a foreign solid body or more harm than good will be done.

Failing relief by any of these measures artificial respiration should be zealously carried on as describe under the treatment of syncope.

Our Contemporaries.

MEDICINE.

On the Causation and Treatment of Diabetes.*

BY

DR. ARNOLD LORAND, of CARLSBAD.

Diabetes is found most frequently amongst those who are great feeders on meat, especially if they also take much carbohydrate food, *e. g.*, sweets. Even dogs can become diabetic with such a diet. One of those animals was a large Bernardine dog, which was fed very richly with meat and sweets. Another was a poodle, whose sire and dam were related to one another as father and daughter. This animal was of weak mental development, and thus illustrated the consequence, as in man, of intermarriage. Diabetes is a frequent result in such cases. The children of diabetics very readily exhibit glycosuria, as we have shown in a paper published in the *Practitioner* several years ago. These children, after puberty, have a diminution of their tolerance for amylaceous food. Therefore, the practical lesson is to restrict the sweets in their diet. It is a fact not to be denied that diabetes, like Graves' disease, has most frequently a hereditary basis. Graves' disease, as we have shown in previous works, stands in close relation to diabetes. Why do persons or animals who take much meat and sweets in their diet for years develop diabetes so frequently?

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The cause of this is, that such a diet tends to alter those organs which play an important pathogenic rôle in diabetes, especially the pancreas and thyroid. The pancreas aids the digestion and assimilation of a diet of such a kind by certain ferments. But it has also been found by SOBOLEW and Professor EBNER that after abundance of amylaceous food the islets of Langerhans in the pancreas can be found in animals diminished or otherwise altered. On the other hand, meat food in quantity is apt to produce important alterations in the thyroid, on the basis of the experiments by CHALMERS WATSON, of Edinburgh. The importance of the pancreas in diabetes is shown conclusively through the experiments of Professor MERING and MINKOWSKI, who were able to produce diabetes in every dog whose pancreas was extirpated. Later on it has been shown, especially by OPIE, WEICHELBAUM, and STANGEL, as well as many others, that diabetes can be found also in cases where the secretory parts of the pancreas are not altered, and only that part of the pancreas is changed which was first described by PAUL LANGERHANS in his "Thesis" of 1869. He described islets in the pancreas which have quite a different anatomical and histological structure from the other parts of the pancreas. It is true that there have been found many cases of diabetes where these islets were apparently not changed, although we must remember that the finding of an apparently intact glandular formation does not show that this gland has been producing its internal secretion during life. As shown by PAWLOW, the pancreas secretes upon nervous stimulation, and after death, it is difficult to find if these nervous impulses have been acting faultlessly, and whether an internal secretion has been produced which could have checked the onset of diabetes.

Besides the pancreas, the thyroid can be brought into etiological relation with diabetes. We have shown in a monograph, published in Berlin, and later in Paris, that diabetes, or glycosuria, very frequently develops in all those conditions where there is a hyperactivity of the thyroid gland, as in Graves' disease, but only when the disease is not too advanced. It has been already noted by Professor VON NOORDEN that there is in Graves' disease an extraordinary tendency to alimentary glycosuria. Glycosuria is also present with great frequency in infectious diseases, after mental emotions, and after different toxic agencies; and, as shown by many authors, the thyroid gland is altered in the above conditions. As we have found, glycosuria of diabetes is increased during menstruation and pregnancy, and this may be due to the well-known relations between the ovaries and the thyroid, which in these conditions can be frequently observed to be distinctly enlarged.

We have been able to prove our assertions by experiments. Together with Professor MINKOWSKI, then at Cologne, we have made dogs diabetic

through extirpation of the pancreas, and then after a diabetes of several days' duration we have removed the thyroid gland. It was interesting to note that the microscopic specimens of these thyroids show a considerable dilatation of the vesicles of the thyroid with a very large amount of colloid substance. Especially was there an enormous difference between the thyroids of two dogs of the same litter; one was diabetic and the other normal. The picture of these specimens can be seen in the *Transactions of the London Pathological Society* (1906, Vol. 1.), and also in a communication to the Paris Biological Society (1907, 25th March). It is of importance that each of three diabetic dogs had lost its glycosuria two days after the thyroid was extirpated.

Glycosuria is very seldom found with a degenerated condition of thyroid in myxœdema, quite contrary to its frequency in the opposite condition in Graves' disease. In the few cases of myxœdema where there was glycosuria, either thyroid extracts have been given, or there was no real myxœdema. It speaks for the relation of the thyroid glands to diabetes that thyroid extracts can produce glycosuria and even diabetes.

Besides the thyroid, also the adrenals seem to play an important rôle, for it has been found by BLUM that adrenalin can produce glycosuria when injected into animals.

We see, thus, that three of the ductless glands have a pathogenic rôle in diabetes, but also the other ductless glands can be found altered. Alterations of the ovaries produce anenorrhœa, of the testicles, impotency, of the liver, hypertrophy. As we have shown frequently, in previous communications, the different ductless glands stand all in close relation to one another. When one of these is altered the others more or less invariably follow.

To treat diabetes rationally we must prevent it. As long as there is only alimentary glycosuria we may have some chances to cure such a condition and to prevent diabetes. For very often diabetes begins insidiously in a sneaking and creeping way. After previous alimentary glycosuria, with traces of sugar, this may go up gradually to 1 per cent. and later much higher. After nervous emotions, sometimes it may at once jump up to a considerable extent.

Thus everything depends upon recognizing the initial stages. Unhappily, this is very frequently overlooked, and hundreds of diabetics in the early stages are not recognized. Therefore, it should be a maxim for every physician to examine the urine of each patient, not only the urine of 24 hours, but also after giving a test dinner consisting of considerable

quantities of sweets and meat. Two hours after such a test dinner, considerable quantities may be found, where before no sugar was present. Thus, the physicians of life insurance companies may save them from very heavy losses, the insurance of such persons often being very risky. As soon as the quantity of sugar rises above 0.1 to 0.2 per cent., anti-diabetic diet should be given, except in cases of alimentary glycosuria where the percentage of sugar does not rise after the test dinner. But this must be rational, and never so severe that even a small piece of Graham bread should not be allowed. Variety in diet is a great boon to diabetic patients. To moderate amounts of meat, green vegetables, a few eggs (unless there is distinct albuminuria), kefir or koumiss of the third day should be added, with a certain amount of sour cream. One to two oranges, which contain only minimal amounts of glucose, should be given. It would be advisable not to give too much meat, for it might stimulate the organs which are provoking glycosuria. It has been found by VON NOORDEN that after much meat in the diet, even light cases of diabetes might turn into severe cases, and especially in severe cases have we seen deleterious results of too much meat in the diet. Such patients feel immediately better after the meat has been reduced, or entirely taken away for a few days. As they said themselves, they felt much lighter and quite different. It is best to give meat only once a day—to the midday dinner. Graham bread, in certain moderate quantities a day, should never be forbidden. Certain fruits that contain little of glucose—like apples, peaches, not too ripe apricots—could be given stewed, as then the sugar enters in the "gravy." There are some manufacturing houses which are producing, wholesale, fruit prepared in such a way.

As a rule, the diet could be more severe in light cases, and be more lenient in severe cases, especially in cases of young persons like children. In such cases cream, and also milk in certain quantities, could be given. In severe cases it is not so much the sugar as the diacetic acid which should occupy our attention. This substance can easily be demonstrated by a few drops of a solution of perchloride of iron in a test-tube of urine. When the reaction of this test shows us a Bordeaux-wine color, diacetic acid is present in considerable quantities, and then it would be advisable, in order to avoid, if possible, acid intoxication, to give as much as 4 drachms of bicarbonate of sodium a day in some alkaline water, distributed in several doses, to be taken after meals.

At the same time, it will be advisable in most cases to allow at least about 3 ounces of carbohydrates a day—best in the form of milk, or oats, or rice, or potatoes—as it has been found, after HIRSCHFELD, that such an

addition to the diet may be able to cause the disappearance of diacetic acid and acetone from the urine.

The alkali should be given already before the above-mentioned reaction is present; best would be to begin as soon as acetone is found in the urine in distinct quantities. In such severe cases, severe diet, as a rule, could be deleterious, and it is certain that many cases of slight diabetes may turn into the severe form after an exclusive meat and fat diet with green vegetables only.

Professor VAN NOORDEN and others have seen good results in such cases from a vegetarian diet with oatmeal.

Butter should always be fresh, for rancid butter may contribute to the development of acidosis.

There are many drugs recommended: but there is no drug that can make sugar disappear without dieting at the same time. Opium and codeine are certainly the most efficacious, but they can be given only for a certain length of time, generally for a short time only.

The alkalies have been much vaunted since old times; and, indeed certain alkaline waters can give good results. In a number of cases of diabetes we have had good results from the serum of animals whose thyroid has been removed previously. We have related a series of such cases in our above-mentioned monograph, and also lately in the *Therapie der Gegenwart*, of Berlin (November issue). But only such cases will answer to such treatment—those who are very nervous, excited, and suffer from insomnia; especially has this latter symptom been improved in every case.

We have been driven to this treatment by the observation that diabetes often presents nearly all the symptoms of Graves' disease, against which this serum has been recommended by its inventor MÖRBIUS. LANZ has seen good results against this disease from the milk of goats whose thyroid was extirpated, and HECTOR MACKENZIE has also published quite recently similar cases.

Many diabetics show symptoms similar to Graves' disease; and, on the other hand, in Graves' disease, after previous hyperactivity of the thyroid, its exhaustion may follow with symptoms of a myxœdematous condition. Thus, in severe diabetes, there are often a series of symptoms of a myxœdematous condition—generally in cases where diacetic acid is present in quantity.

We had recently such a patient under treatment, and we were surprised to find that a large amount of diacetic acid had disappeared two weeks after we had given thyroid extracts, beginning two a day and

rising to four a day. It is interesting to note that not only have these large doses been well tolerated, but also all the conditions of this patient—who showed symptoms of a very serious condition (he was not yet 30 years old)—have greatly improved. In another case with much diacetic acid and gangrene of the foot, seen in the ward of DR. H. VETLESEN, in Christiania, there was a diminution of the diacetic acid after a few days' treatment; but, unhappily, the gangrene proved fatal. In a third case, also, acetone disappeared after similar treatment. We think thyroid treatment to be indicated only in severe cases with diacetic acid, and contraindicated in light cases. The above-mentioned case of very severe diabetes has so much improved that, as his physician, DR. BILLING, of Wara, in Sweden, wrote, several months after the return of the patient to his home, he was surprised at his condition.

Let us hope that it may be really possible to prolong life through such treatment, even in the severe cases of diabetes which, until now, have been invariably doomed to death.—*The Canada Lancet*.

Sudden Death.

By this term is understood death which comes unexpectedly; or, in other words, of which there has not been any definite warning. To many sudden death would be preferred to a lingering and painful illness preceding their demise. Such a death as that of Professor ANNANDALE was much more preferable than one like that of Professor VON BERGMANN.

Sudden death may be the ending of an acute illness, may be the termination of a lingering sickness, or may occur in apparent health.

In acute diseases we may meet with sudden death when there has been no warning of such an event. This is the case sometimes in pneumonia, typhoid fever, and especially in diphtheria. Sudden heart failure in diphtheria is not so common now as it once was, yet it may occur. Then in the convalescence of pneumonia death may come with marked suddenness when an uninterrupted recovery was expected. Sudden death in typhoid fever may result from heart failure or severe hæmorrhage.

In chronic disease sudden death may intervene under many conditions. In consumption the rupture of a blood vessel or the existence of an embolism may terminate life in a few moments. In some forms of heart disease, such as in degeneration of the heart muscle or aortic incompetency, death may be ushered in at any moment. Aneurism, too, is a cause for some sudden deaths. It has been known also to be caused by rupture of varicose veins. In cirrhosis of the liver hæmorrhage from the

mucous membranes may be violent enough to end fatally. Sudden death may occur to those who have incarcerated herniæ, abdominal adhesions, chronic pelvic disease, impacted gall stones, ulcer of the stomach, and chronic appendicitis. Rupture of the spleen has been known to cause a sudden and fatal ending to cases of disease of that organ, especially malarial enlargement. Chronic Bright's disease by coma, apoplexy, cedema of larynx or lungs, or dyspnoea has ended many a life, and often when the victims were unaware of their kidney trouble. It is well known that diabetics may die suddenly in coma, or by heart failure after a slight exertion, or from shock or emotion. In some forms of insanity, as general paralysis, in middle ear disease, in Graves' disease, in acromegaly, and in bulbar paralysis sudden death is always a possibility.

Persons in apparent good, or in actually good, health, may die suddenly. Examples of this would be found in such events as a foreign body entering the larynx. The rupture of a tubal pregnancy has caused sudden death. In some cases of cirrhosis of the liver there may be very little to disturb the person and his condition undetected until some internal vessel ruptures. Persons may have atheromatous arteries or an aneurism and not know of these. In fatty degeneration of the heart the organ may suddenly give way and acutely dilate or rupture. And all these in persons who were going about in seemingly good health.—*The Canada Lancet*.

The Sequelæ of Enteric Fever.

We have discussed the majority of the sequelæ of enteric fever in the four short articles upon the subject already published; there remain a few others, however, upon each of which a few words may be said in conclusion.

PERIPHERAL NEURITIS.

Occasionally extensive multiple neuritis, affecting both upper and lower extremities, with sensory disturbances and atrophy similar to those met with in alcoholic subjects, is seen. As a rule, however, the neuritis is irregular in its distribution, rather than symmetrical as a peripheral neuritis ought to be according to the usual definition of the term. It may be located in a plexus of nerves on one side of the body only, or on one side of the body very much more than upon the other. It may be restricted to the root or trunk of a single nerve. The trouble usually sets in with excessive pain in the deep parts of the affected limb, or along the course of the affected nerve, followed by numbness and paresis. Sometimes the pain and other sensory phenomena may be extreme without the

motor functions being much involved; in other cases there may be complete paralysis of the muscles, supplied by the affected nerve or nerves, followed by marked atrophy and the reaction of degeneration. It is impossible to give names to all the different types of this neuritis; sometimes its form resembles a sciatica; or the front of the thigh may be involved by a lesion which might be designated anterior cruritis; the arms may be affected as well as, or apart from, the legs, one particularly troublesome form being that in which the parts about the shoulder joint are involved—the wasting of the muscles causes the humerus to fall away from the glenoid cavity, thus exerting additional traction upon the branches of the brachial plexus, and leading to excruciating pains.

Paresis of cranial nerves is very rare after typhoid fever, but Dr. Dreschfeld records a case in which the fifth was affected both as to its sensory and its motor roots, recovery being but partial.

The prognosis of post-typhoidal peripheral neuritis is upon the whole quite favourable, and the treatment is precisely similar to that of the same lesion due to other causes.

CONTRACTURE OF THE LEGS.

If in any tedious debilitating malady the position of the patient is long maintained in such a way that any of the muscles are not compelled, from time to time, to extend to their full length, there is a liability that they will become contracted and shortened. It has happened, for example, that a young patient has been ill of typhoid fever for a great many weeks—so ill that she was not expected to recover; she has been disturbed as little as possible, and she has maintained a posture in bed with her thighs drawn up towards her abdomen and her legs flexed at the knee; she has ultimately recovered, but to the dismay of all, it is found that she is now unable to straighten her legs; the latter are permanently flexed, both at the hips and at the knees; when she is strong enough, tenotomy of the hamstrings is performed, and so forth; the contractures are relieved partially but the patient is never able to get her legs properly straight again; she is crippled by contracture of the legs.

Naturally this sequela is rare, because in most cases now-a-days, the skilled nurses who attend patients wash them from head to foot each day and in doing so ensure that the legs are straightened at least once in each twenty-four hours. The possibility of this untoward sequel of the illness should never be forgotten, however; the legs should not be allowed to remain flexed or in one position for days together; if the muscles are passively elongated from time to time, the misfortune will not result. Once seen, a case of the kind will never be forgotten.

THROMBOSIS.

Thrombosis might have been mentioned earlier in the list of the sequelæ of typhoid fever, because it is not very uncommon. There is, however, little to say about post-typhoidal thrombosis in particular, for it does not differ greatly, either as to prognosis or as to treatment, from thrombosis due to other causes. As a rule it is of the "simple" type; that is to say, the clot does not tend to break down and lead to septic embolism of the lungs, and pyæmia. Though "simple" in this respect, it is like other "simple" thromboses in the fact that it has a microbial cause just as much as "infective" thromboses have. A good deal has been written lately upon the coagulability of the blood in typhoid fever; it has been stated that the blood is more coagulable than it should be, that this is a main cause for the thrombosis, and that the latter may be inhibited by the exhibition of such drugs as potassium citrate. This may be the case to a small extent, but there is a considerable amount of evidence to show that mere increased coagulability of the blood will not cause thrombosis unless there is a bacterial invasion of the wall of the affected vein as well. The typhoid bacillus may, perhaps, be the offending organism in some of the post-typhoidal cases, but the commonest bacterium to find in so-called "simple" thrombi, whatever disease they arise in, is the *bacillus proteus vulgaris*. DR. BRYANT and DR. PAKES found this organism in quite a number of consecutive cases. It would seem that the *bacillus proteus vulgaris*, which is practically innocuous to healthy persons, becomes harmful to those who are debilitated by disease, and that amongst the lesions it produces is phlebitis and venous thrombosis. This explains the clinical facts that nearly every such case has pyrexia, which lasts for days or weeks, and that there is visible evidence of active inflammation along the course of the affected vein.

After typhoid fever, the commonest thrombosis is that of one or other internal saphenous vein or its connections. The treatment is the same as it is for non-typhoidal cases.

SPONTANEOUS RUPTURE OF MUSCLES: ZENKER'S DEGENERATION.

A rare, but very remarkable, sequela of typhoid fever is the spontaneous rupture of a muscle, or of part of a muscle, when the patient first begins to exert himself physically during convalescence. The least uncommon site for the lesion is the rectus abdominis muscle of one side or the other. It is not common for the entire muscle to snap across, but several fibres in it may give way, with sudden pain followed by some deformity in the outline of the affected muscle. Effusion into the sheath follows the rupture, but the condition is not dangerous; rest and

time cure the symptoms, though it may be possible to feel a permanent irregularity of outline when the muscle is put into contraction. The cause of the lesion is a degeneration in the fibres of the muscle, first described by ZENKER, and referred to as "vitreous" or "Zenker's degeneration." The affected fibres look dull and opaque; microscopically they are seen to have lost their striation, so that the sarcolemma is filled with masses of clear, homogeneous, glass-like substance; the connective tissue cells of the muscle undergo proliferation; some authors regard the change of a coagulation-necrosis, caused by the high fever.

ORCHITIS.

In conclusion, one word must be said about orchitis. It is not extremely uncommon after typhoid fever, and like many others of the sequelæ that have been discussed, it may be long delayed. Its chief importance lies in the fact that it may too easily be attributed to a cause other than past enteric fever.—*The Hospital*.

Precautionary Measures Necessary to Prevent Infection in Typhoid Fever.

BY

JOHN A. AMYOT, M.B.

During the Spanish-American war 86.24 per cent. of the total deaths were from typhoid fever. There were 19,265 cases per 100,000 of the army. Of these cases, 1,463 died.

In 1900 there occurred in the United States 35,379 deaths from typhoid fever. This would represent approximately, taking 10 per cent. (and this is high; 7.5 per cent. is better) as the average mortality from this disease, 353,790, or one case for each 240 of the population for that year. Very few go through life without taking the disease at some time or another. There are no available statistics in this connection for us here in Canada. We probably are not very far behind, though allowance must be made in our favor for our northern situation. Three-quarters of these cases are now preventible. This disease attacks chiefly between the ages of 20 and 30 years, when the monetary value of life is greatest. Aside, then, from the suffering and the heart-pangs this disease alone, during 1900, cost the United States in money, estimating each life as averaging \$6,000, \$212,000,000. Preventive measures would have cost much less than this. Take one of the measures, water filtration, probably the most important, as an example of efficiency and cost. We may admit justly that three-fourths of the water supplies of the United States need this process. Eighty-five million people need on an average

8,500,000,000 gallons of water per day, or 100 gallons each. Taking as a basis for this calculation the estimate for the New York filtration works for 500,000,000 gallons per day as \$10,000,000 for three-fourths of the water used, it would cost approximately \$128,000,000. For the removal of the other causes much less would be required. The saving of one year would protect probably for twenty years.

This, I take it, is sufficient example to show us that this disease is important enough for our consideration. It is a preventible disease. The line of attack is fairly well understood. We know the causative agent. EBERTH first isolated it in 1880. KOCH and GAFFKEY proved it in 1884.

The disease cannot be produced by bad air, but water, faulty plumbing, or climatic conditions. The bacillus of EBERTH alone causes typhoid fever. There are diseases resembling very closely, symptomatically, typhoid fever, and so far as the patient is concerned nearly as important. These are parathyroid, paracolon disease even under certain conditions, colon infection, and the striga bacillus, which gives us a dysentery closely resembling typhoid in many of its phases. All of them are principally intestinal in their lesions. Often other parts of the body are infected as well. Altogether they are so closely related that they are classed as the typhoid or as the enteric group of diseases. The causative agents in each case are transmitted from the patient to the victim by the same routes. The preventive measures for one are those for all.

Typhoid fever is a preventible disease. Every case comes from somebody's neglect or ignorance. A famous hygienist in indignation once said: "For every case of typhoid fever some one ought to be hanged."

This was not always *justifiable*. This disease had not been recognized as a specific disease before 1829, when LOUIS for the first time differentiated it from typhus fever. CHOMEL in 1834 gave it its present name. It took some time before this discovery was accepted. The Boston census of 1854 has no mention of it, only typhus. It is a contagious as well as an infectious disease. For a long time many have gone on looking on it as merely an infectious disease. LOUIS when he first differentiated the disease pointed out that it was contagious. BRETONNEAU and TROUSSEAU in France, MUNCHISON and JENNER in England, all asserted clearly their belief that it was contagious. BUDD in 1873, in his splendid and convincing work, proved beyond a shadow of a doubt that typhoid fever is a decidedly contagious disease—though, of course, not to the same extent as the others with which we are only too familiar. The difficulty of health authorities to have practitioners report their cases, and

the so often made statement to their patients by the family physician even now, "No; it is not contagious; it is only infectious," shows that the idea that it is only infectious is not dead yet.

The bacillus of typhoid fever locates itself chiefly in the lymph glands of the body. It overflows into the circulation. This is especially so in the early stages of the disease. COLEMAN and BUXTON isolated from the blood of over 1,000 cases of typhoid fever, 89 out of a hundred in the first week, 73 during the second week, 60 during the third week, 38 during the fourth, and 26 after the fourth week.

During these infections of the blood any of the secretions or excretions of the body may have the bacilli in them, and in some cases these may carry them for years. The patient becomes a carrier—the sweat, the sebaceous secretion, the tears, the saliva, the bile, the urine and the intestinal contents. We are not sure at any time that any of these can be free from the bacteria. These substances may be dried and be blown about. They may adhere to hands, to clothing, to food; may be expelled in coughing. They may be walked over by flies, fleas, lice, bedbugs, or other vermin, and be carried to milk. They may be thrown out over the land and be washed over or carried by boots or by insects, toads, worms, mice, and many other ways into wells and water courses. They may thus get to shell-fish, to milk, to water supplies, be blown about in the dust, get into food, on roofs, and into cisterns and into water supplies.

To prevent infection, then, the following general precautions should be taken by the various ones concerned.

The Patient.—When sneezing or coughing, he should protect from the expulsion of the bacilli from other than a handkerchief surface. In convalescence the handing of dainties to others should not be done. Even hand-shaking is dangerous. The use of the family-towel should be avoided. Urine and feces should be voided in such places only where they can be taken care of.

The Physician.—It is his duty to warn the patient about his duty to those surrounding him. He should warn the family and the nurse as to the sources of infection to be avoided. He should make his orders explicit, should write them, not merely tell them to disinfect the stools, etc., but tell them how and what quantities of disinfectant to use, etc. He should not neglect medicinal disinfection in his patient, if it can with comparatively little risk take them—motropin for urinary disinfection, salol or some such drug for intestinal disinfection. Mouth washes and hand washing should be directed to be done frequently. He should report to the health authorities the source of infection, if he can find it, or suspicion.

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The Nurse.—Understand the directions of the physician. She should take the greatest care that no part of the excreta of any kind even in the minutest drops, should get away from the possibility of being disinfected. This may afterwards dry up and blow away, infect herself or those about. She should see that the windows are properly screened to keep out flies, the doors as well should be screened. She should either disinfect everything that has come in contact with the patient or gather it together in such a way that it may be done by the household.

The Household.—Fæcal matter, urine, sputum, and vomited matter, and any other discharge should be disinfected as soon as possible. Some prefer chemical methods, some heat.

Chemical Lime, unslaked.—Use it dry or as freshly made milk of lime, using as much in bulk as of the substance to be disinfected, thoroughly mixing. In cess-pools, use three-fifths of lime per cubic foot of contents. A barrel may be required for an ordinary household cess-pool (milk of lime, 1 in 10 of water). Keep only a few days air excluded.

Chloride of Lime.—The available chlorine is the active principle here. Common grades contain 20—30 per cent. of this; electrolytically produced, it contains from 35 to 40 per cent. Use dry as in the case of quicklime. The latter is cheaper and less odorous, and about as effective. To prepare a disinfecting solution of chloride of lime, dissolve one-third of a pound in a gallon of water. Use a quart of this for each stool. Should be allowed two hours for effect. Should be prepared fresh each day.

Carbolic Acid.—Half a cupful to a gallon of water (5 per cent.). Equal quantities of this with the material to be disinfected should be used, well stirred, and left for two hours. This is expensive. It serves best in disinfecting by soaking bed-linen, underwear, handkerchiefs, towels, napkins, etc., before boiling; as a body wash, 2 per cent. sol. is as strong as the patient can stand.

Corrosive Sublimate.—One in 500 should be used for excreta in equal volume, and give 2 hours' action; 1 in 1,000 is sufficient for bed linen, etc., previous to boiling. If there are any flies about, it is especially necessary to use these disinfectants, with the object of preventing them carrying infectious material about. For bathing after stool, 1 in 3,000 is best.

Aromatic Disinfectants.—Are best for nasal and mouth washes.

Motropin.—For the urine in carriers in 5 to 7 gr. doses three or four times a day until bacilli disappears from the urine. They think much of this at the Hopkins.

Fumigation.—After recovery is useful. *Formaldehyde* is best. The permanganate liberation method is the most generally applicable. The requirements for thorough disinfection are, first, 75 per cent. humidity in the air of the room at the temperature at which the disinfection is done. Temperature should be between 50 and 70 degrees Fahr., and a sufficient quantity of Formaldehyde rapidly evolved. Ten ounces of commercial Formaline (40 per cent. Formaldehyde) should be used for each 1,000 cubic feet of room space.

Heat.—The most effective of all. It is the most neglected. It is the cheapest, and everywhere nearly available. Burn everything that can be burned. Boil everything that can be boiled. USE BOILING water for the disinfection of excreta. It is better and cheaper than all else, and more easily got, but it must be at the boiling temperature. For excreta use three bulks to one of the substance to be disinfected, and stir well to break up the masses. The bacilli are vegetative, and are killed in 10 minutes if exposed to heat of 160 degrees Fahr. The heat will penetrate much better than the chemical will.

The *bath water* should be disinfected as well as the stools and other excreta. It is only a dilution of the same thing, as a rule.

Bed-clothing, towels, napkins, handkerchiefs, sponges, etc., should be disinfected.

Dishes, knives, forks, spoons, and cups should be all boiled.

Any food remains should be burned.

Burial of Excreta.—For fear it is not wholly disinfected, they should be buried when this can be done in unfrozen ground. In this last case it should not be put out in cold storage, but in a proper privy-vault. To bury, dig a trench a foot deep, heaping the earth up at the side. Cover each mass, leaving the rest of the trench for the next dosage, and so on.

Privies.—In typhoid this should be, where the "water carriage" system is not available, of the "dry earth" type. In this case use unslaked lime, 5 pounds per cubic foot of the content, and when possible carry away and bury or burn. Such outhouses should be well screened to prevent flies getting in or out, and keep closed. The flies from a lime-covered privy very soon would streak up a chocolate-iced cake exposed a hundred feet away. Flies may fly miles away. The privies should also be protected against the entrance of mice, rats, and other vermin, especially as these will frequently track back over food in the pantry or cellar. Infected material should be handled with very great care in carrying, etc.

A drop of faeces or urine might contain hundreds of thousands of typhoid bacilli.

Strict quarantine is not necessary. Isolation as much as possible should be done. Keep children and others from running in and out of the sick room.

Public Authorities.

Receiving Reports.—This should be made as early as possible. Telephone and card. It would be well, too, to have to make provision for the reception of report of suspected cases. Much of the aversion to making a mistaken diagnosis and no report would be removed. Don't be afraid of your town reputation.

Diagnostic Tests.—Positive Widal serum tests and the Diazo test for the urine should be made easily available. Blood cultures would help out very much, where it is possible to carry through the technique. The sooner one knows what one has to deal with the better for the community.

Disinfectants.—These with proper instructions for their use it would pay the authorities to supply *gratis* and without too much formality.

Disposal of Priny-contents, by incineration or other method, should be made easy by the authorities. It also would pay.

Sewage.—Where the water carriage system of sewerage is in operation, the sewage should be disposed of by some of the methods in vogue. To remove the bacteria "land irrigation" and "intermittent sand filtration" of the bacterial methods is to be used. Where simply the removal of organic matter is done and the bacteria let through, as happens with the septic, the contact, and the sprinkling method, disinfection should be done of the effluent from these works.

The *latrines* of boats and railway trains are undoubtedly the cause of infection of some water supplies. These utilities should be made to remove this possibility. With terminal facilities for incineration much of the danger could be removed.

Flies.—A general war should be declared against these pests by the removal particularly of their breeding-places—the open manure heap and the privies. General screening should be used to prevent their getting into sewers and then into houses.

Water-supplies—In the crowded state of the population now existing, no open water supply is without danger of pollution. The general adoption of sewage disposal, and, above all, proper water filtration, according to the class of water in question, should be done. Undoubtedly

infected waters, in Europe especially, have been made as free from infection as artesian waters from unquestioned soils or the melting snow of the mountain caps. People seem to be frightened off by the cost of this. A filter suitable for a city like Toronto can be built for under \$750,000, when 40,000,000 gallons a day would be provided for a daily operating cost of \$1.50 per million gallons. It would hardly add one-tenth to the water rate.

Vended-waters are not always safe. Often very little precaution is taken about the protection of their springs.

Food and Milk should be looked after jealously to see that it is not exposed to dust or the possibility of infection, and that in the case of milk a complete control over the supplies of milk be possible.

Prospective Victims.—Boil questionable water. Eat only unquestioned oysters or none. Pasteurize milk. Have screened windows. Keep up health tone. Don't put your trust in nostrum preventatives, lemon juice or whiskey in questionable water.

Be vaccinated against typhoid if you are going particularly as a military man or nurse to infected localities.

HARRISON'S last report in the *Journal of the Royal Army Medical Corps*, gives the following figures, that seem to the open-minded, fairly hopeful and convincing:

2,207 soldiers vaccinated—morbidity 16.8 per cent.; mortality 1.36 per cent.

8,113 soldiers unvaccinated—morbidity 21.32 per cent.; mortality 5.18 per cent.—*The Canadian Practitioner and Review*.

SURGERY.

Severe Spasmodic Contraction of a Finger Cured by Stretching the Median Nerve.

JAMES ADAMS, M.D., F.R.C.S. (*Lancet*, Feb. 1, p. 237).—A needle-woman, aged 45, came under observation in Nov. 1905, for extreme contraction of the middle finger of the right hand. In Dec., 1902, she pricked the thumb of her left hand and it became swollen, tender, and inflamed, and it suppurated. She went to University College Hospital in Jan. 1903, and remained there for 2 months, all the fingers and hand becoming involved in what was evidently a septic infection. The fingers and hand were freely incised and drained and she was discharged in March with drainage-tubes still in. She returned in the following May with the wounds unhealed and the mischief spreading further and amputation was

performed at the middle of the forearm. The surgical register of the hospital reported that "The patient was admitted with a septic infection of the palmar sheaths and cellulitis of forearm following a poisoned wound of the thumb. The arm had to be amputated to prevent further extension of the suppuration." In Feb., 1905, the middle finger of the right hand began to contract.

The finger was badly contracted, but showed no signs of disease. With much force and some difficulty the writer could extend the finger fully but this gave great pain and when freed the finger at once returned to its state of rigid contraction with the tip firmly fixed in the palm. The finger had been treated in various ways without success. The writer tried internally anti-rheumatic and anti-gouty medicines and iodide of potassium in large doses; locally he ordered hot brine baths, liniments, ointments, massage, etc., splints to the palmar surface to keep the finger extended, but all without benefit. To keep the finger in a position of complete extension was very painful. It also proved useless, for when the splint was removed the finger at once re-contracted. After 6 weeks' treatment the patient begged the writer to amputate the finger as it was so inconvenient, besides preventing her from earning her living. Accordingly, in Jan., 1906, the writer removed the finger at the metacarpo-phalangeal joint with the head of the metacarpal bone. The wound healed normally and quickly.

In Feb. she returned to work with a useful hand and with rest of the fingers in a normal condition. For 6 months this continued, but in Aug. the ring finger began to contract and in spite of treatment became as bad as the middle finger, and she was re-admitted in order to have this finger also amputated. The condition, appearance, and symptoms were identical with those of the other finger. It was in a state of marked tonic contraction with its tip fixed and kept firmly in the palm. By no effort could she move it, and the writer could only extend it by using much force and causing great pain. On releasing it the finger returned at once to its vicious position like a strong spring set free. The finger was not swollen, red or painful, and its sensation was normal, and the other fingers were normal in every way, as were the hand, the forearm, and the upper arm. The patient's general health was excellent, and her appetite was good. She was of a placid, non-neurotic type, dark complexioned, well nourished, active, and industrious.

To remove a second finger from the hand of a woman of this class, already deprived of her other hand, would have been a serious misfortune. The writer showed her at a meeting of the Eastbourne Medical Society, where a suggestion was made that stretching the median nerve might be

beneficial. The writer readily acquiesced. In Dec., 1906, at the junction of the middle and lower third of the upper arm, the writer made a 3 in. incision in the course of the nerve. He separated the nerve from its bed, took it up with his forefinger and thumb, and stretched the distal portion forcibly for 4 or 5 minutes, and then the proximal end for the same time. The wound healed well. Under the anæsthetic the finger could be readily extended. Before she recovered from the anæsthesia the writer put on the finger a palmar splint. He retained this for 3 weeks, removing it twice a day for passive exercise. At the end of this time he ordered the splint to be kept on by night only for another fortnight and then to be left off altogether. For nearly a month the patient had numbness in some of the fingers and disordered sensation in parts of the hand, and, curious to relate, the numbness was in the two fingers supplied by the ulnar nerve—*viz.*, the little and ring fingers—there being no numbness in the thumb and forefinger. BROWN-SEQUARD refers to a similar occurrence as regards sensation when on stretching the sciatic nerve in guinea-pigs the part of the foot innervated by the anterior crural nerve became anæsthetic and sometimes even the leg on the opposite side to that of the operation became also anæsthetic. In one case there were incomplete paralysis and anæsthesia in the right leg after considerable stretching of the sciatic nerve on the left side. And he adds: "It is clear that the spinal cord is modified by the stretching of a nerve," (HOLMES'S "System of Surgery," Vol. II.). After leaving off the splint there was no contraction of the finger or tendency to contraction, and the patient had a useful hand. In Dec., 1907, she could bend and extend the finger normally and there was no tendency to contraction.

The etiology of the case is obscure. The condition was not a Dupuytren's contraction nor an osteo-arthritis finger, neither was it inflammatory nor a sequel of inflammation, nor gout, nor rheumatism, nor an example of neuromimesis. The tissues and joints of the finger amputated were all healthy. The contraction was certainly not organic but was a true spasm and became more severe the more it was opposed.

The writer can find no instance of stretching the median nerve having been done in England for contraction of a finger. CALLENDER relates a case of stretching it for neuralgia, and MORTON for athetosis, in which both median and ulnar nerves were stretched with success. The nearest case to his which the writer has been able to find is one recorded by Prof. NUSSBAUM. During resection of the elbow of a tuberculous girl, aged 6, for ankylosis, at an inconvenient angle some traction was made upon the ulnar nerve and spasmodic contraction of the fourth and fifth fingers, which had hitherto existed, was in consequence completely cured.

Prof. NUSSBAUM also describes the successful stretching of the ulnar nerve, and the various branches of the brachial plexus in the axilla of a soldier, aged 23, for extreme spasmodic contraction of the hand, forearm, and upper arm accompanied by anæsthesia of dorsal aspect of the forearm, the result of traumatism. In this case also all spasm ceased under anæsthesia.

The writer has no doubt that if he stretched the nerve when the patient first came under treatment he would have saved the middle finger from amputation. No doubt the rarity of such a form of spasmodic contraction in a finger partly accounts for the rarity of the operation, but it forcibly illustrates the utility of such a safe and simple surgical procedure when a muscle or group of muscles is affected by this form of intractable spasm.—*The Medical Review*.

A Personal Experience of Spinal Anæsthesia.

T. H. S. (*Four. Royal Army Med. Corps*, Apr., p. 414).—A slight prick in the small of the back, a sharp blow as the needle was driven home through the tissues, and a faint dragging pain as it felt its way into the spinal canal. That was all, and the entire process of anæsthetising, so dreaded by the patient, was over. In 2 minutes a warm glow spread slowly up both limbs, quickly followed by a tingling sensation in the feet. In another half minute a heavy laden feeling spread up both legs, and only the very slightest movement of the toes could be performed. The feeling of numbness gradually increased, with loss of sensation, and in $3\frac{1}{2}$ minutes there was complete anæsthesia up to the umbilicus, and I was experiencing the curious condition that, with complete control of all my faculties, I was, for all practical purposes, dead from the waist downwards.

During the whole operation, which was in the region of the right hip and the muscles of the thigh, not a single twinge of pain was felt until 50 minutes after the insertion of the needle, when cutaneous sensibility began to return, and the last few stitches were slightly painful. The spinal anæsthesia was produced whilst lying on the left side, and during the operation there was not complete loss of sensation in the left leg, and there was slight power of movement in the left foot. Slowly sensation began to return to the limbs, with the same tingling in the feet. I felt no nausea or unpleasant symptoms of any kind, and half an hour after leaving the theatre I was enjoying a cup of coffee and a cigarette, feeling very comfortable, and thoroughly convinced of the tremendous advantages of stovaine over chloroform.

But 4 hours later I was not so sure about it, for I developed the most appalling headache, which lasted for 36 hours, in spite of all treatment. Never have I experienced such a splitting headache. To vary the monotony I had attacks of agonising cramps in both legs, which lasted for an hour or so and then gradually subsided, to be followed by another attack in a few hours. The cramps became less frequent, the headache wore away, and 48 hours after the injection recovery was complete.

My experience of stovaine may be exceptional, and as far as I can gather, is so; but if the after-effects of spinal anæsthesia are likely to be as painful and prolonged as they were in my case, then it has no advantages over chloroform. Nothing would induce me to undergo them again unless the administration of chloroform was out of the question.—*The Medical Review*.

Injection of Adrenalin in Normal Saline Solution in the Collapse of Septic Peritonitis.

O. ROTHSCHILD (*Munch. Med. Woch.*, Mar. 24, p. 624).—A woman, aged 40, underwent laparotomy for perforative peritonitis on the third day of the disease. A large quantity of fetid pus escaped. As the abscess appeared to be circumscribed by recent peritoneal adhesions a drain of gauze was inserted and no search was made for the appendix. The next morning there were alarming symptoms of collapse, the temperature being normal but the pulse 130 and irregular. No improvement followed the hypodermic injection of normal saline solution ($1\frac{1}{2}$ litres) and of camphor. Evidently the condition was one of peritoneal sepsis. In the evening there was a well-marked *facies Hippocratica* and the pulse was 150 and flickering. There was vomiting and the condition appeared desperate.

A vein at the elbow was exposed and 1 litre (35 oz.) of normal saline solution, to which 8 drops of the usual 1 in 1000 solution of adrenalin had been added, was injected intravenously. A few minutes after the injection was begun the pulse improved and soon became remarkably strong and well sustained. The general condition improved proportionately. As on the following day the pulse rose to 130 and there were indications of renewed collapse the same solution was injected intra-muscularly. The result was almost as remarkable as before and the improvement was thenceforth maintained uninterruptedly. The patient was in a short time discharged cured. The writer is convinced that without the adrenalin injections the patient would have succumbed to the collapse consequent on the great fall of blood pressure, which is such a feature of septic peritonitis.—*The Medical Review*.

Spontaneous Fracture of an Artificial Eye.

R. BEAL (*La Semaine Medicale*, Feb. 26, p. 100).—That form of artificial eye which is constructed as to contain a closed cavity has been observed to be liable to spontaneous fracture. A woman wearing such an eye closed her lids on the approach of a missile which grazed her face without injuring her. On opening her eyes she heard a sound of breaking glass and felt pain in the eye, where the apparatus was found to have fractured and injured the stump to which it was applied. It has been suggested that such accidents are caused by the expansion of the contained air under the influence of heat. As the artificial eye is exposed to great heat during its manufacture there must exist in its interior, if not a vacuum, at least a pressure much lower than that of the atmosphere. It is more probable that the breakage is the result of atmospheric pressure, especially as it has been noted that fracture takes place on the deep portion of the bulb. If this view of the cause of fracture is correct the writer points out that it may be readily prevented by the manufacturer providing a small aperture by which the pressure within and without the artificial globe may be equalised.—*The Medical Review*.

THERAPEUTICS.

Notes on Some of the Newer Drugs.

THEOCIN SODIUM ACETATE.

THEOCIN or Theophyllin is one of the Xanthine derivatives. This remedy has no effect upon the heart or central nervous system. It is, however, a powerful diuretic, and has a very pronounced action upon muscle. It is isomeric with theobromine which is likewise a Xanthine derivative. It was originally isolated as an alkaloid from tea by KOSSEL in 1888 but now it is made synthetically. Theocin appears to surpass all other substances in its diuretic power. Quite recently it has been found advantageous to form a chemical compound of the somewhat insoluble theocin with the acetate of sodium; this produces a very readily soluble substance. The dose which seems most suitable is a small one, namely, 5 to 7½ grains. If larger doses are given nausea and vomiting or even hæmatemesis may result. Observations show that theocin increases not only the watery but also the solid constituents of the urine. Consequently it is of great value in cases of dropsy. In the treatment of arterio sclerosis associated with heart failure theocin is indicated, as, according to BAUMGAERTNER, it dilates the coronary arteries, and so increases the renal secretion. It has also, says FRANKEL (*Therape d. Gegenwart*, Jan., 1906), a stimulating action upon the central nervous system. It may often be combined advantageously

with preparations of digitalis or of other similar cardiac tonics. Small doses, however, should always be employed.

NOVASPIRIN.

This new remedy is a white, odourless powder, with a very faintly acid taste. It is really methylene-citryl-salicylic acid. It is readily soluble in alcohol, but almost insoluble in water. It contains 62 per cent of salicylic acid. It is not absorbed by the gastric mucous membrane, and so its administration never produces nausea or other gastric disturbance. It is decomposed in the intestinal canal, with the liberation of salicylic acid. It never gives rise to symptoms of salicylism such as are produced by salicylate of soda. It is of special value in the treatment of influenza and of nasal catarrh, while it is also regarded as a specific in cases of rheumatism. In sciatica and other forms of neuralgia it appears to be highly beneficial. The dose is five to fifteen grains, and can be given either in powders or cachets. Writing in the *Deutsche Medizinische Wochenschrift* (1907, No. 10) LEHMANN ascribes to this remedy particularly a sedative and analgesic action. While aspirin is more efficient in very severe cases of acute rheumatism it may be replaced later by Novaspirin, which he finds to have a less marked diaphoretic action. He also found it of service in the treatment of intercostal neuralgia and of nervous dysmenorrhœa when given on the first appearance of premonitory symptoms.

VERONAL.

This is a urea derivative. FISCHER and v. MERING consider the hypnotic action of this substance is largely due to the presence of ethyl in its composition. Veronal is certainly a very active hypnotic, and, according to Professor von LEYDEN, of Berlin, should be given in doses of three to fifteen grains. He has repeatedly observed unpleasant effects produced when larger doses have been given, such as headache, nausea, and irregularity of the heart. It is best given dissolved in hot tea or hot water. Milk is not a suitable medium as, owing to the formation of alkaline salts, a bitter taste is thereby produced. "Sleep, after veronal, lasts as a rule, for six or seven hours, and is quiet and refreshing." In the experience of von LEYDEN, when sleep duly occurred, the patient was completely free from the effects of the drug on the following day. Sleep usually follows within a short time after a medium dose has been administered.

QUINOLIV.

The chemical substance, to which the name "Quinoliv" has been given, is a tasteless powder, the active agent of which is sulphate of quinine combined with olive oil. It is manufactured by the Davenport process,

by which it is claimed that the quinine is freed of the properties which render it so objectionable to the taste without diminishing its value therapeutically. According to an analysis made by the eminent American chemist, Dr. DOREMUS, of New York, Quinoliv contains one grain of sulphate of quinine in each grain and a quarter of the powder. The remaining quarter of a grain is a mixture of olive oil with the disguising agent. He further says that the "agent is of vegetable origin and harmless, and does not interfere with the solubility and therapeutic action of the sulphate of quinine upon the system."—*The Medical Times*.

Thyroid Extract in Migraine and Epilepsy.

GORDON (*Therapeutic Gazette*, December 15th, 1907) remarks that some functional, nervous and mental diseases, depending upon the presence in the organism of toxic products elaborated in some way, improve under the administration of thyroid extract. It is, therefore, supposed that there is a relationship between the toxic elements found in the body and the thyroid gland. Migraine, which is due to a morbid metabolism has an undoubted relationship to a faulty thyroid function. The auto-intoxication in migraine is, of course, not always directly due to a disturbed function of the thyroid gland, but there is a series of cases, so to speak, of "thyroid" nature in which administration of the thyroid extract gives satisfactory results. In epilepsy the relation of the seizures to a faulty chemistry of the organism is now an accepted view. Individuals suffering from epilepsy, and at the same time presenting deficient thyroid glands, have sufficient reason to account for their seizures. The author records six cases of epilepsy who had been under treatment for a long time, and who always showed signs of hypothyroidisation. Extreme care in selection of diet, regulation of their mode of living, avoidance of stimulants, intoxicants, and finally the bromide treatment, have all proved to be only of very little benefit. When the thyroid treatment was instituted a remarkable change took place, first in the condition of his patients. The apathy, lassitude, and headache have all gradually disappeared, and the gastro-intestinal digestion has improved. The epileptic seizures became less and less frequent, so that at present they are rare. In one patient, a woman of 57 years of age had been suffering from epileptic convulsions for 16 years, there was practically no improvement under ordinary treatment, but a marked diminution of the number of attacks and in the severity began from the time the thyroid treatment was begun. This patient had had no recurrence of attack for four years. The other cases of the series had an attack once in several months, while prior to the thyroid treatment the seizures occurred

once a week in spite of bromides and a special salt free dietary. The conclusion seems justified that there is a certain class of epileptics whose seizures are in direct relationship with a disturbed function of the ductless glands, and particularly the thyroid. In such cases the reason of failure of the usual treatment lies in the want of thyroid feeding. Administration of the latter will be of great benefit.

The Dangers in the Use of Urotropin.

BEARDSLEY (*Therapeutic Gazette*, January 15th, 1908) remarks that this drug has specially proved its value as a urinary antiseptic. The virtue of the drug lies in the liberation of nascent formaldehyde in the glomeruli and tubules of the kidney, neutralising the toxins and destroying the germs of disease; and recalling the action of formaldehyde, even when diluted, upon any portion of the body or upon the various mucous membranes, one can readily understand how drug toxicity may result from careless use of this drug. The author desires to call attention to three cases in his own experience in which the use of this drug in small doses caused toxic symptoms, and he also summarises other cases from the literature. Case (1) was an old man with enlarged prostate and cystitis, who was given urotropin in 5 grain tablets three times daily, and was warned to dissolve the tablets in a large glass of water before taking it. In four days hæmaturia with much pain developed, and this continued even with doses of only two grains. Case (2) was a young woman, who was given urotropin for alkaline urine with much phosphaturia. After taking 40 grains in 5 grain doses she complained of intense itching of skin, with a sense of discomfort in the abdomen. Examination of chest and back showed the presence of a well-marked scarlatiniform rash. The urine contained no blood and was acid at this time. The rash disappeared on withholding the drug, but reappeared when smaller doses were given. Case (3) was an elderly man who had been advised to take this drug for some difficulty in micturition. After taking 4 tablets of 5 grains each he complained of burning pain in bladder, and hæmaturia. A record of the literature on this subject shows that many other observers have noted toxic effect from small doses. Considering first the toxic effect on the gastro-intestinal tract, it is certain that unless well diluted before administration, symptoms of gastro-intestinal irritation are common. The development of a rash is so rare a manifestation of the toxic action of the drug that it is reasonable to ascribe it to some special idiosyncrasy. That urotropin is often an irritant to the kidneys cannot be doubted. It has been proved experimentally that solution of the drug injected into the body cause albuminuria at once, and hæmaturia in a

short time. The writer remarks that although it may be true that urotropin is used many times without bad effects, and that it is an agent of great value, yet there are many patients who suffer great pain and discomfort because of its use; that many of these cases are never published, and that the bad effects of the drug are often ascribed to the disease being treated rather than to the remedy. In conclusion, although urotropin is a valuable drug, it is not the harmless agent which the profession have been led to believe; but when used a careful watch should be kept for symptoms of toxic action, and frequent examination of the urine should be made, as red blood cells can be found in the urine before symptoms are complained of by the patient.

OPHTHALMOLOGY.

The Treatment of Iritis.

E. C. ELLETT (*Jr. A. M. A.*, April 4, 1908,) agrees with BRAILEY and STEVENSON that the object of the treatment of iritis is three-fold: 1, to dilate the pupil; 2, to relieve pain; 3, to treat any constitutional condition that may be present as a cause, as well as to attend to the patient's general bodily welfare and secretions. The object of dilating the pupil is (a) to prevent the formation of adhesions which might interfere with the vision and with the free circulation of the aqueous between the anterior and posterior chambers; (b) to diminish the volume of the iris, thus lessening the amount of blood in it; (c) to put the ciliary muscle at rest by the same drug which dilates the pupil; (d) to secure the local sedative action of the midriatic drug.

The most efficient mydriatic is atropin, of which the standard solution is that of four grains to the ounce. It often is advisable to increase the strength to eight grains to the ounce in patients with marked adhesions, or to lessen the strength in children or persons who are susceptible to the drug. Where adhesions cannot be broken up with the use of the stronger solution it may be wise to place a small crystal of atropin in the lower cul-de-sac, having the patient hold the finger over the lacrimal region for ten or fifteen minutes. The atropin catarrh, which formerly was quite frequent, is now generally believed to be the result of infection from dirty solutions and dirty droppers. The use of clean droppers and fresh solutions will prevent most cases of this trouble. To enhance the mydriatic action of atropin, cocain may be used, preferably just before the instillation of the atropin. Dionin is also recommended, although ELLETT's personal experience does not satisfy him that it is all that it is claimed to be in this connection. The application of heat also assists the action of

the mydriatics by increasing the circulation through the eye. The eye should be protected from light and the patient put to rest in bed until convalescence is established.

For the relief of the pain, in addition to the use of atropin, cocain, dionin and heat, locally, anodynes are often needed. Some form of opium is most effective but should be used only as a last resort on account of its systemic effects. A combination of antipyrin and salicylate of sodium in moderate doses has been found very efficient. Local blood letting by leeches, preferably, is often helpful. When the pain is due to increased tension, hot applications, miotics and paracentesis are indicated. When miotics are used the pupil should be dilated at least once in twenty-four hours to prevent synechiæ.

Constitutional treatment should include the treatment of the constitutional condition which is acting as the cause of the iritis and in addition to this any disturbance of function, nutrition or metabolism, giving special attention to the action of the bowels, skin and kidneys. Mercury and salicylates are of course needed in syphilis and rheumatism, but they are often of value in cases that are not due to these diseases. Mercury is especially valuable in cases with much plastic exudate. ELLETT finds the best results follow when the drug is given by inunctions. He finds the iodids of little value except in chronic cases or when the iritis is associated with choroiditis. While sweats are of some help they are not nearly so valuable as they are in the treatment of choroiditis.—*The A. J. of Ophthalmology*.

Two Cases of Steel in the Interior of the Eye and Their successful Treatment.*

BY

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Many, perhaps all of us, can recollect how hopeless we used to be in the presence of a piece of steel in the interior of the eye. Such an accident was generally looked upon as synonymous with the enucleation of the eye, or if not, a long season of suspense and the constant fear of sympathetic ophthalmia.† However, I can say regarding this latter

* Read at a meeting of the Ophthalmological and Oto-Laryngological section of the Academy of Medicine, Toronto, April, 1908.

† 'The Combined Treatment in Diseases of the Eye,' by G. Herbert Burnham, M.D., Tor., F.R.C.S., Edin. Professor of Ophthalmology and Otology at the University of Toronto, etc., Toronto Can., by H. K. Lewis, 136, Gower St., W.C., London.

disease, sympathetic inflammation, that of this justly dreaded affection I have not the same fear as oculists in general seem to have, for I have succeeded in saving eyes which have suffered from the milder, and also from the worst, forms of sympathetic disease.

Judging from the literature of this affection, I am alone, apparently, in expressing such full confidence in an ability successfully to treat sympathetic inflammation.

Returning, however, to the subject of this paper, I can safely say that this feeling of inability to do anything regarding eyes injured by pieces of steel is now done away with, owing to the x -rays and HAAB'S magnet, for through them we can be sure of their presence and locality, and of the means of their removal. My remarks will be founded upon two of my cases.

In one which occurred several years ago, most opportunely the HAAB'S magnet had just been received. The late Dr. McMASTER and myself tested it a few days after its arrival. The next day, almost, a man with a piece of steel in the interior of his eye presented himself.

The late Dr. McMASTER by the X-rays accurately located it in the vitreous. It had in its passage wounded the inner third of the cornea, iris and lens. The magnet, mounted on a movable stand, was applied to the cornea a little to the inner side of the centre. It acted, and the piece of steel presented itself through the outer iris. There it lodged, and the magnet, though placed between the lips of the wound in the cornea, could not budge it. I now elongated the wound to the opposite corneal margin, just in front of the piece of steel. Now the magnet quickly removed it. This last elongation of the corneal wound allowed me to draw upon it in a straight line and thus successfully to take it out, whereas before doing so I failed on account of pulling at an angle.

This exemplifies the necessity of being patient and trying different line of traction. Like a flash does the steel, when it comes out, appear on the tip of the magnet. In this case there was necessarily much disturbance of the various structures and though granting an aseptic foreign body, still there was a natural fear of losing the eye. Owing to an unavoidable delay several days elapsed before the magnet was used. It is sometimes advocated to make, in this form of case, an incision in the sclerotic back of the ciliary processes and through this opening remove the piece of steel by the magnet.

I did have difficulty in saving the eye, but finally, after two months, it recovered, being perfectly quiet. The, bright perception of light with

a good field. I gave iodide of potassium and mercury, internally, and kept upon the eye without cessation a large piece of ice. This was always put in a sling of cheesecloth and laid upon the closed eyelids with a thin pad intervening.

The use of ice in a rubber bag is wrong, rather, a much inferior method. The cheesecloth enables the eye always to have the effect of the full chill of the ice, whereas using the bag, the latter is often only filled with cold water, the ice having melted. The water, as the ice in the cheesecloth melts, runs away, and hence the ice is always in contact with the eye, and also it can be noticed when the bulk of ice is much lessened and thus put on a fresh piece without any delay. In this way the eye was kept thoroughly chilled for at least six weeks. This condition was a great check to the subsequent inflammatory changes and so limited them as to enable the eye to recover there from. My last information was, that the eye was quite quiet and the vision impaired by the corneal scar and opaque capsule.

The second case was about one year ago, and was that of a man whose eye was wounded by a piece of steel, which penetrated the outer cornea and iris, and lodged midway between the lens and ciliary body without apparently affecting either of them. A delay in getting the magnet caused an exudate to surround the steel and pain began. However, warned by previous experiences, I made an opening in the cornea opposite to it and finally landed the piece of steel. In this case, though I knew its position and the condition of the surrounding tissues, still one hour and a quarter elapsed before the steel sprang out and attached itself to the tip of the magnet. My first case took in all two hours. The magnet was fully acting upon the steel, as evidenced by the jolting movements of the eyeball and head. Hence the necessity of perseverance if you wish to succeed. This case when last heard from had good vision with the eye quite quiet. I am informed that I was the first in the city to use Haab's magnet. As I used it such a short time after its arrival, it seems to be a correctly-made statement.

The shorter the time after the lodgment of a piece of steel in the interior of the eye the magnet is used, the better the hope of recovery, is allowed by all of us.

Alloys of iron may be wholly or nearly non-magnetic. The alloy of iron with manganese and the effect it produces in the destruction and alteration of its susceptibility to magnetism is interesting and surprising. Without going any further into the magnetism of alloys of iron, it is stated as a fact that special steels differ widely in their behaviour when

placed in the magnetic field. This ought to be borne in mind, although it is again stated that all of them affect only slightly the question of removal from the eye.—*The Canada Lancet*.

Treatment of Chronic Trachoma.

A. E. PRINCE recommends the use of a 10 per cent. solution of copper sulphate in glycerine, put in the patient's hands with instructions to dilute one drop in twenty drops of water, and to use freely on the eye from four to six times, as the best home treatment for chronic trachoma. In some cases a weaker solution has been found advisable, but toleration is soon acquired by most patients, and some have borne well a strength of one to five. He believes it more efficient than the occasional application of the bluestone crystal. He still finds a few cases, however, in which his former favourite prescription of tannin and mercuric oxide ointment, 1.5 per cent., comes into play, with some sulphate of copper added as an adjuvant. Nitrate of silver is also sometimes useful, in addition to other remedies, especially where there is mucopurulent secretion. None, however, is in his opinion so generally useful as the copper and glycerine solution. Of equal importance is the necessity of removing trachomatous material that may prevent the remedy from reaching deeply situated infection. Some have erred in putting too much reliance on the operation and not following it up with a remedy that attacks the disease after it has been exposed. The various complications of trachoma and their treatment are discussed in some detail. PRINCE finds jequirity a useful drug in pannus due to trachoma, but he uses it commencing with a very weak solution, 0.25 per cent. at the commencement, and uses a fresh solution every day.—*Four. of the Amer. Med. Assoc.*

Potassium Iodid in Treatment of Incipient Cataract.

VON PFLUGK (*Medizinische Klinik*, Berlin, Feb. 16,) reports results from subconjunctival injection of a 1 per cent solution of potassium iodid, containing 2 per cent sodium chlorid. in the earlier stages of cataract. Experimental research has also confirmed the benefits of this treatment and explained its mechanism. Since BADAL'S first recommendation of potassium iodid for this purpose, in 1901, 239 cases have been published, including VON PFLUGK'S own experience with 55, and VERDERAU'S with 48. Improvement was marked in all but 14 and 6 patients, respectively, and the cataract did not progress in any instance. BADAL and his followers merely instill and bathe the eye with .025 and 2.5 per cent solutions and the results are not so good as with the sub-conjunctival injection.

It is well to commence with their technic, however, and resort to the injections if improvement does not become evident under the instillations. The potassium iodid technic is regarded by VON PFLUGK as one of the most important achievements of the last few years, and he urges its general adoption and perfection of the technic. Capsular and nuclear cataract are not benefited to any extent, the potassium iodid having its main effect on ordinary sub-capsular cortical cataract.—*Four. A. M. A. The American Journal of Ophthalmology*.

DERMATOLOGY.

Dentifrices and Mouthwashes.

BY

GEO. W. COOK, B.S., D.D.S., CHICAGO.

Dentifrice, in the last analysis of the word, may mean either a tooth powder or a tooth wash. The above title is given in about the way the profession of dentistry uses the two terms. A tooth powder, as we at the present time understand it, we always call a dentifrice. We apply the term mouth-wash to a liquid remedy that is capable of removing any foreign substance from the oral cavity. Its use has become quite frequent since the discovery of the pathogenic properties of bacteria, and since it has been discovered that a large number of the so-called parasitic forms of life are habitual inhabitants of the oral cavity.

Tooth powders, in their original application, were used as a means of removing, or at least keeping, substances from forming on the surfaces of the teeth, lest they remain there and mar the appearance of these organs. Tooth powders, according to history, as agents for cleaning and brightening the teeth, came into use many centuries ago; and various compounds were prepared by certain races and classes of people for enhancing the beauty of their teeth. Many of the uncivilized races resorted to this means of brightening the surfaces of their teeth to make themselves attractive. From the very earliest data in medical antiquity we find that tooth powders, or something that served that purpose, were used; but at that time, as we have stated, they were used as agents to polish the teeth. Common wood ash and various agents of like character were used to rub on the teeth with sticks; and we might say that the modern tooth-brush is the outcome of an attempt many centuries ago to prepare an appliance with which a powder or gritty substance might be applied to the teeth. At that time the use of the powder and brush was confined very largely to the anterior teeth and was only for the purpose of making them ornamental, the users being absolutely unmindful of the

deleterious effect they would have upon their teeth. From a study of the subject before hygiene was known, tooth powders seem to have been used with equally as much intelligence as at the present time.

Modern dentistry has brought great revolutionary ideas into operation and in some respects has rendered great service to the race; but with it has come some most deleterious influence for destroying the beauty and long usefulness of the natural dentures. In our modern time, and with modern ideas of beauty and hygiene, has continued the enthusiasm for rendering the teeth one of the ornamental characteristics of the face. Wherever there is a desire on the part of the public in general to go to extremes there comes to the front the commercial instincts of the race, to prepare and sell to the public commercial and secret remedies whether they are a class of commodities that are useful to the people or not. In many respects these remedies are not only useless to the individuals, but sometimes a great detriment, especially if put into the hands of those enthusiastic persons who wish to make their teeth not only useful, but ornamental and attractive.

A tooth powder, which consists of a chalky substance, should be used only for the purpose of removing the inorganic and mucilaginous substances that attach to the surfaces of the teeth. This is a useful and very essential process, but it must be borne in mind that the extremes now practised will do great harm, for we all are aware how unintelligent even the dentists themselves are in using tooth powders and other agents for the purpose of cleansing the teeth.

The classic work of the late Dr. Miller on the effects of tooth powder and the brush on the surfaces of the teeth, is so recently before our minds, that I shall only allude to the fact that he demonstrated how easily and how rapidly a tooth might be brushed away by the use of a brush and tooth powder. I need only state that these agents are the greatest possible assistants in the causation of erosion of the teeth. I do not wish to be understood as saying that tooth powders and tooth brushes are the sole cause of erosion, but I do wish to emphasize the fact that they are important factors in this process.

The object of a tooth powder is principally to cleanse the teeth, or in other words to remove all substances that remain about or between the teeth. Now, as a profession we have left this important branch of our therapeutics to commercial individuals, and it is a well established fact, that wherever commercialism enters the field of dentistry, science must give way. Especially is this true when it comes to medicinal agents; for scientific therapeutics has never come to the dental profession in a way that has materially benefited it.

We have not had an agent in a great many years that is any improvement over the early attempt at getting up a good common-sense tooth powder. A tooth powder given to the profession about thirty-five years ago was just as good as anything since that time; and, in fact, there are a number of tooth powders that have agents in them that are absolutely deleterious both to the tooth substance and to the mucous membrane. The mixed saliva contains mucous cells with more or less mucin or colloidal substance with which a tooth powder will become more or less a pasty mass, which may contain a large number of bacteria. These micro-organisms will soon grow, and there usually is present enough organic material in the mass of glue-like substance to carry on the growth of bacteria. The statement will probably be made that we should incorporate antiseptics with all our tooth powders. Any such substance will filter out of a powder in the mouth in from three to eleven minutes so that not a trace of it can be found. With these facts at our hand, then, the usefulness of a tooth powder can only serve one purpose, and that is to keep the surface of the teeth clean and free from extraneous substances. Now, with the knowledge that these agents will in certain mouths cut away the tooth tissue with great rapidity, it leaves us in doubt as to whether or not we should use them at all.

If a tooth powder is to be used, it should not be used until the dentist has determined just what it contains, especially as to the fineness of the grit. Any tooth powder containing cuttle-fish or pumice should be excluded, as these agents will cut away tooth substance almost as fast as a sand-paper disk. A tooth powder containing 1½ percent soap will cause, when used twice a day for several weeks, a degeneration of the mucous tissue. The soap from soap bark will cause this last named condition more rapidly than the ordinary castile soap.

The soft tissue cell that is of the most importance to the teeth in the oral cavity is the unicellular glandular epithelium of the mucous membrane. If the preservation of this tissue is not maintained, then our function in giving the best care to this special field is a failure. Our first function is to treat the teeth without in any way interfering with the surrounding tissue; and, when our treatment is of such a nature as to render the function of the mucous tissue about the teeth degenerate, then our treatment is not in accordance with the most scientific phenomenon known to biologists. If we look into the pharmacology of most agents that are used in the oral cavity as mouth-washes, we will find that they will, if accompanied with friction, cause degeneration of the mucous tissue. It is quite essential then that the condition for which a tooth powder or mouth-wash is prescribed be given some consideration.

There are incorporated in tooth powders agents that are usually spoken of as drugs. The word drug means a crude remedy used in medicine. Practising medicine is the art or science of healing disease, especially by the employment of a remedy in the treatment of a disease. With this understanding, a tooth powder would naturally come under the head of preventive medicines. Now it is a question whether or not this branch of medicine should be prescribed by specially educated individuals whose trainings have been such as to make them competent to differentiate as to whether an astringent or a stimulant shall be used in a certain case. If the observer is sufficiently skilled, he may determine whether or not a preventive remedy is required. Some questions naturally arise: Shall preventive remedies be prescribed, and under what condition shall they be indicated in mouths in which there are present sound teeth and mucous tissue, and where there are no irregularities, in other words, where there is a normal oral cavity? I should say, by no means need we prescribe antiseptic tooth powders and mouth washes.

If teeth are not in their normal relations to each other the mucous tissue is not in a normal condition. Then it is the duty of the clinician to study the individual abnormalities and apply such remedies as the case may demand. If it is studied from a physiological and pharmacological standpoint it will be possible to reach a base of scientific and practical therapeutics. It should be borne in mind that when a tooth powder or mouth-wash is prescribed when there is no specific pathological lesion present, it comes under the head of preventive therapeutics. In prescribing a preventive remedy it should be prescribed as a specific against the possible occurrence of a specific disease process.

If we accept the biological causation of disease, we must then agree that a remedy that will prevent caries of teeth will not always prevent diseases that manifest themselves in the mucous tissue, and *vice versa*. However, it is universally attested that the original use of these remedies was for the preventing of carious conditions of the teeth alone; and in the effort to prevent this pathological condition of the teeth, almost every day there are remedies prescribed that may prevent this disease process. But in establishing immunity or preventing decay, the remedy may be of such a nature as to cause pathological changes in the soft tissues of the parts about the teeth. Any of these agents may not make any appreciative change in the mucous epithelial structure for a considerable time, but the gradual degeneration may at once burst into a flame of pathological changes that may pass into a chronic pathological state and remain that way until the teeth are completely lost. When these remedies are causing such a condition of epithelial degeneration, they should be

withdrawn at once. The misfortune is that these pathological processes are seldom recognized until the process has reached the chronic state. When that state of pathology has been reached, it is difficult to know whether the remedy or the bacteria is causing the disease process.

There are many agents that are being daily used and recommended by the dental profession, which, in my hands and attested by various processes of applying them to the epithelial mucous tissue, have proven to be most essential in bringing about certain tissue changes that are pathological in their general characteristics. The agents have under certain circumstances proved to be specific in the causation of erosion and may indirectly have caused pyorrhea alveolaris. I have taken large quantities of tooth powders and mouth-washes and applied them to culture medias in various ways. As a result bacteria grew and fermentation increased one-half of one percent in acidity over the controls that had none of the remedies in them. The length of time that it takes the most efficient disinfectant to act upon the bacterial cell, though even that agent could be applied to the mucous membrane, is so great that one may hope to remove the bacteria from the oral mucous membrane only in a mechanical way, in other words, in washing them out of the mouth. Experiments also proved that, when these most potent remedies were used in the oral cavity, growth did not take place in the culture media as rapidly as they did in the control. We demonstrated, however, that by making a chemical test for the agents used as disinfectants in the mouth, traces could be found, in the culture medias showing that they acted rather upon the bacteria after they had been transferred to the artificial media than while they were in the mouth.

With such facts are these before us, we are inclined to repeat a statement formerly made upon this question—that, at the present time there is not a remedy on the market that is capable of acting as a disinfectant to the oral mucous membrane except by mechanical action only. Besides, the agents that we look upon as being the most potent in the destruction or prevention of the growth of bacteria, will produce more deleterious effects upon the mucous epithelial structure than they will upon bacterial life. I have proved by the application, on a particular tissue, of certain agents like thymol, trikresol, formalin in the most diluted solutions, bi-chloride of mercury 1-1000, boracic acid, and various of the hydro carbon compounds, by moistening a pledget of cotton and placing it on a particular location and holding it there from one to two minutes and a half three times a day, that each is the cause of certain pathological changes in that particular spot, the phenomenon of which did not appear in the tissue in other parts of the mucous epithelium. These pathological changes

differed as much in their microscopic appearance as each individual differed from another. I remember one case in particular where forty-two treatments twice a day, with a two percent solution of thymol applied along the gingival border or just above the gingiva over a cuspid tooth, produced degeneration of the epithelial structure, into the characteristic mucoïd degeneration of tissue that is well described in the literature on degeneration. This same solution was applied in the same location in the mouth of another individual in which there appeared a hypertrophied growth of the epithelial structure; the result differed so characteristically from the other that you would think that the same agent could not possibly have produced the two pathological changes. So it is a wonderfully complex task to say just what we can or cannot use as a dentifrice.

It only requires a brief consideration to see the adaptive capacity of the tissues of the oral cavity. It would consume so much time even to touch upon this phase of the biological phenomena so constantly before us in the study of any condition of the oral cavity, that we cannot discuss this phase of the subject. But wonderful as it may seem, my treating and studying the tissues in the oral cavity and especially around the teeth, has made me wonder if really we know anything about the physiology, to say nothing of the pathology that comes under our observation. In perfectly normal persons, or we might say those who measure up to the standard of what we call physiological process, about 20% transfer to the saliva from the tissues and fluids of the body, immunizing substances. The other 80% of these people, so-called normal, have varying degrees of immunity or bacteriolytic action; while a large percent of the tired and nervous people, who do not have the standard normal conditions, are constantly susceptible to one or the other agent as applied to the mucous tissue, and also have a restraining effect upon one class of bacteria, while it practically increases the virulent properties of the others. When I say virulent properties, I mean those properties which are the physiological type of bacteria.

So it will be seen that in the study of remedies and in applying them in the oral cavity, we cannot lay down any specific rules whereby we can prescribe remedies as dentifrices, or can recommend their universal use, any more than we can recommend a particular treatment as truly specific in the immunizing or cure of any disease. But I believe that if an individual can be made by us to throw off more water with the salivary and mucous products, so that it will become a more universal solvent of the mucoïd and colloidal substance, that we will render a greater service to our patients than all the therapists could prescribe in a hundred years.

I should like to make two or three suggestions here. First, do not prescribe astringent solutions that will act in a very appreciable manner on the mucous epithelium. Prescribe only stimulants that will act in the very mildest manner, for these two agents are the ones that will cause degenerative changes in the mucous tissue. If you have decided that you must prescribe any of these things, unless they are for specific conditions that exist as pathological lesions, do so in the mildest manner possible, because I can assure you that their action on the mucous membrane is of greater detriment than the benefits would be. When there is some specific condition that you prescribe a certain drug for, you should know exactly what pathological changes are taking place in the tissues.

Now, as for tooth powders and tooth pastes, all the difference there is between the two is the addition of a sufficient amount of glycerine to make a thin pasty mass of the powder. I will here append a prescription that was suggested by Dr. C. E. JONES of Chicago, after he had gone over a large number of formulæ, and after he had made up hundreds of batches of tooth powders that are more or less known to the profession. This mass as a powder should never be used except when it has been filtered through two thicknesses of ordinary silk. A powder that will not pass through two thicknesses of silk will cut away tooth substance in the mouth of some people so rapidly that the patient and dentist will become alarmed at the wonderful development of erosion.

There are times when even an apparently healthy tissue would be benefited by some agent that would stimulate the physical properties of these cellular elements. But the point I wish to make is that we must prescribe certain agents with due consideration as to what effect they will have on healthy tissue cells. The formula that I have given here, prepared in the proper manner, is the only tooth powder out of forty-two different samples tested in the laboratory in the last five years that will not produce either rapid degeneration of the tissue cells or produce certain eroded conditions in the mouth of animals as well as in man. The real efficiency of a tooth powder lies principally in its having no effects on the tissues except in a mechanical way.

It will be impossible for me to go into the discussion of mouth-washes because to my mind this involves one of the most interesting problems in dental therapeutics. Suffice it to say that a mouth wash should be prescribed, not with a view of rendering the oral mucous membrane free from bacterial life through its action of the bacteria themselves, but that it can possibly operate only as a mechanical agent. If it is only to be used occasionally it can be made stronger. The main plea that I make

in this paper is for the preservation of gum tissue, and we cannot preserve this important tissue structure if we use all sorts and kinds of agents, and especially those unknown to us. The time is past for the profession of dentistry to rely upon empirical remedies and practise empirical therapeutics.

ANTACID TOOTH POWDER.

R	Magnesi Oxidi.....5	Forms milk of magnesia with water.
	Calci carbonatis.....10	Precipitated chalk, grit.
	Magnesi peroxidi.....2	Oxidizing agent, O is liberated when brought in contact with lactic acid.
	Menthol.....0.20	Antiseptic cooling agent.
	Benzosulphinidi.....0.10	Flavor (saccharinum).
	Olei Menthae pip.....0.20	Flavor aromatic.

M.

Sig. Apply with brush.

Mix first three ingredients together in mortar. Dissolve the benzosulphinidum and menthol in the oil and while adding to the powder, triturate thoroughly.

Dental Era—Dental Register.

Bromide Eruption.

The female infant shown, aged 9 months, is the subject of a most typical and striking eruption due to bromidism. The history of the case is of special interest as the child herself has taken no drugs containing bromine, but has been suckled by the mother, a chronic epileptic, who for the past three years has been taking on the average 70 gr. of bromide of potassium every day, but herself is free from symptoms of bromidism. The eruption made its first appearance in the child about two months ago the scalp in the form of small pustules; in the last few weeks, however, she has developed masses of vegetating growth raised $\frac{1}{4}$ in. above the general level of the skin, and covering areas of which the largest is 3 in. by 2 in. in extent; there are about eight or nine such patches, ranging in size from a three-penny piece to the dimensions given. These masses are seen with a lens to consist essentially, in the earliest stage, of agglomerated, deep-seated pustules and infiltrated nodules; they are often excoriated on the surface, bleed freely, and become foetid unless very great cleanliness is exercised. The patches thus present a formidable aspect and are commonly mistaken for rupial syphilis, a mistake actually made in this instance. The treatment consists in little more than withholding the drug, in this case to be attained by weaning the child, and in keeping the surfaces aseptic, which may be done by applying local compresses of lot. hyd. perchlor. 1—4,000, if the lesions are not too numerous to risk mercurial absorption, or in more extensive cases chinisol or allied antiseptics.

A similar and even more remarkable case of bromide eruption in a child who developed the characteristic patches three days after birth was noted by DR. WHITEFIELD; in this case it is possible that the origin of the intoxication was by the placental circulation, the mother having taken the drug during pregnancy.—*The Polyclinic.*

TOXICOLOGY.

Nutmeg Poisoning.

THE question of poisoning by nutmegs has been brought to the notice of the profession by PROFESSOR CUSHNY, in a paper read before the Royal Society of Medicine; and the subject is of much interest in that, although nutmegs and preparations from them are seldom prescribed medicinally in any quantity, they are in use in almost every household, and it is perhaps surprising that they are not taken in poisonous quantities more often than they are. DR. G. B. WALLACE has collected twenty-five cases of nutmeg poisoning from the literature of recent years, and it is probable that many other cases have never been recorded. The condition, therefore, is less uncommon than might be thought.

That nutmegs contain a soporific principle has long been recognised, and it is on this account, as well as by reason of the pleasant flavouring, that a little nutmeg has been long advocated as an ingredient of the night-cap glass of grog. Like so many other drugs, however, that which is soporific in some cases, and with certain doses, may be a deliriant in other cases or in different doses, and it was recorded, by LOBELIUS, as long ago as 1576, that a woman might be made delirious should she indulge too freely in the nutmeg.

The recorded cases show that the toxic symptoms supervene in many instances from the ingestion of no more than one or one-and-a-half nutmegs at a time. One man was poisoned by a teaspoonful of the mace. Doubtless there are great individual differences in different persons in respect to the quantities of nutmeg that can be taken with impunity; but there can be no doubt that certain people have the idiosyncrasy to be materially upset by the ingestion of less than two nutmegs.

The symptoms consist of drowsiness passing into stupor, coming on in from one to six hours; the patient may have diplopia, as in acute alcoholism, and although he may be able to answer questions at first, the stupor often deepens until it is with difficulty that he can be aroused at all. Delirium is frequently present before the stupor stage, and there may be inability to recognise surroundings or persons. Spasmodic

movements of the jaw have been recorded in some cases, whilst in others there has been continual idiotic laughter, or persistent disconnected talk. Giddiness is sometimes one of the earlier symptoms. Gastro-intestinal troubles are usually slight, though there may be a sense of burning in the epigastrium. The pupils are generally widely dilated, and dryness of the throat may be complained of, so that belladonna poisoning may be simulated. Cardiac symptoms are not often pronounced, but when they are present they may be very alarming, the pulse becoming small and thready, the feet cold, the face pale, the general condition being one of acute collapse.

The stupor lasts for something between four hours and two days, passing off gradually; complete recovery almost always results, although in one case, that of a boy of eight who took two nutmegs, death resulted in twenty hours. The symptoms present features which remind one of poisoning by opium, by belladonna, and by cannabis indica. The mixed condition of depression and stimulation is very striking, and the chief effect is upon the cerebral centres rather than upon the viscera with which the swallowed nutmeg itself comes into contact.

It has been proved experimentally that if the volatile oil, of which there is from 3 to 8 per cent. in different nutmegs, is first distilled off, no toxic effects are produced by the residue. The poisonous properties of the spice seem, therefore, to be contained in the essential oil.

Seeing that recovery is the rule, treatment need not be too drastic. The administration of an emetic would be wise, in order to remove any nutmeg that may remain undigested in the stomach; for the rest, the usual treatment of the collapsed state by hot blankets and hot bottles, by the administration of stimulants, and by the use of liquid food, is all that is usually required.—*The Hospital*.

THE ANTISEPTIC.

SEPTEMBER, 1908.



Sanitary Play-Acting in Madras.

MADRAS has never been considered a health resort. At its very best it is only a tolerable city to live in, and at its most unhealthy season it is almost a death trap. Medical men in Madras are agreed that August and September are the most unhealthy months in Madras. We have seen many Augusts and Septembers in Madras, but cannot recall to our memory a more unhealthy August and September than those of the present year. We refrain from quoting statistics of death rate. We have sufficient knowledge of the inner working of the Madras Corporation not to accept their vital statistics figures as absolutely correct. But statistics apart, no one will deny the unhealthiness of the present season in Madras. In spite of its unhealthiness we are not pessimistic enough to maintain that Madras is hopelessly beyond improvement. Modern Sanitary Science has rendered even worse places than Madras habitable and healthy. But here unfortunately the sanitarian seems to make little headway. Sanitary optimists who measure sanitary improvements by the amount of money spent for sanitary purposes believe that we are steadily improving, and that when the Corporation has spent 1 crore of rupees on drainage and water works Madras will be within measurable distance of a sanitary millennium. We would willingly share these optimistic views "but alas recollection at hand hurries us back to despair." We would here briefly review the present sanitary condition of Madras so that our readers may be in a position to determine as to how much of the present unhealthy condition of this city is due to defects in its sanitary administration. It is none of our business as a medical man to apportion praise or blame to any one or to any body of men for the existing state of affairs. We leave that to the Corporation and to the Government. We are only concerned with facts.

Water Supply.

The situation of Madras on the belt of silicious sand that runs along the Coromandel Coast made a proper supply of drinking water

from some outside source the chief necessity for the health of its inhabitants. As the filth collected on the surface was, owing to the porous nature of the soil, washed down to the water bearing strata during every monsoon, it was quite evident from the very beginning that Madras wells could not be depended upon for the supply of wholesome drinking water to the city. And so some years ago the water supply from the Red Hills tank was introduced and that is the existing source of water supply. We have in these pages described at some length the history of the present water supply scheme as well as the existing water works. At present we are only concerned with the quality of the water supplied to the inhabitants of Madras. In July, August and September both the quantity and quality of the water supply goes down.

The explanation of this is easy. The Red Hills tank is both the source of the municipal water supply to Madras as well as an irrigation tank from which water is taken for irrigating agricultural lands. By about July the level of water in the tank goes down, and enough does not enter the delivery channel. Almost every year at that period water has to be pumped from the tank into the delivery channel. This process stirs up all the mud and dirt at the bottom of the tank and the water sent in to the delivery channel is exceptionally dirty. That is factor No. 1 to be considered. Secondly, on account of the diminution in the quantity of water, pressure diminishes and there is stagnation in delivery pipes in most localities in Madras.

Stagnation leads to incrustation inside the pipes, the washings from which are mixed up with the drinking water. That is factor No. 2. Thirdly, it is also highly probable that the old water pipes may be corroded in places and holes thus created may serve to admit sewage contamination into the water supply. These three factors acting individually or collectively have made the water supply at present unsuitable for drinking purposes. The water drawn from some of the water taps, especially in localities like Mylapore, which are situated far away from Kilpauk, where the masonry tube from which the water is distributed is located, are stinking and absolutely unsuitable for human consumption. As we have already remarked, we are not here concerned with the question of who is responsible for this state of affairs. Nor are we concerned with the fact that at a future day there would be an improved system of water supply. All that we are concerned with is the fact that the existing supply of drinking water is not "wholesome" as required by section 192 of the Municipal Act and that it has in a large measure contributed to the unhealthiness to which we have already alluded.

Drainage.

The system of underground sewers has been of recent introduction to Madras. As yet it is not complete. And even in the completed parts the drains only carry away the sullage of the city, the night soil being removed separately by the dry method. But what we have to consider is, how far has the new drainage system answered the purpose for which it was constructed. So far we are sorry to say it has not been much of a success, in so far as it does not efficiently remove all the sullage which it is intended to remove. We do not care to enter into the engineering aspect of the question. All that we know is that the underground sewers in 2 streets in Mylapore have practically collapsed, that the main sewer in Poona-malee Road does not carry away the sewage satisfactorily and that it overflows at the house connections, and that practically the same unsatisfactory condition prevails in many streets in Triplicane. An underground drainage system, unless it is effective, is capable of doing more harm than good. And in the present state of Madras the unsatisfactory working of that part of the drainage system which has already been completed is as much responsible for the unhealthiness of Madras as the absence of any drainage system in some other parts. The system of cleaning the open side drains and depositing the silt by their side in the open road has not contributed to the improvement of the general health of this city. The closing of the open side drains in certain localities where the underground sewers have been completed, without making any provision for the carrying away of rain water has also been productive of unhealthy conditions. The death of two coolies from sewer gas poisoning from one of the Madras drains is a striking demonstration of the system of ventilation of sewers adopted in Madras. Our readers know well enough the effect of badly ventilated sewers on the health of the city in which they happen to exist. The question whether bad drains are better than no drains we shall not attempt to discuss. In our opinion it is like choosing a tree to hang upon.

Conservancy.

But in this city where there is no water carriage system the conservancy of the night soil occupies as important a place as the removal of the house sullage. And the system of conservancy in Madras is perhaps its most characteristic feature. It has produced a state of affairs which the Army Sanitary Commissioner once described thus:—In Madras there is "human excreta everywhere—excrement reeking air, excrement reeking water, excrement reeking soil." The Army Sanitary Commissioner's report does not by any means exaggerate the conservancy mess of

Madras. The system is simplicity itself. The Corporation night soil carts pass along the streets twice a day—once in the morning and once in the evening. The private scavengers who remove the night soil from the house latrines are supposed to deposit them in the carts as they pass along. That is the theory. But in practice only a certain proportion of the private scavengers are ready to deposit their burden in the Corporation night soil cart. Others who come on the scene too early or too late to catch the cart deposit their noxious burden wherever they can—into the open side drain, or into the adjoining dust bin, or in the bungalow distinct over the hedge of an innocent neighbour's compound. Thus all Madras is converted into a huge night soil depot. In Triplicane, for years past they had not even this luxury of the two daily visits of the night soil cart. There the night soil carts go only in the morning and then they return to their depot with their loads and remain there till night. It has been explained that Triplicane is conserved in the evenings by hand carts, but we are assured that there is no evidence of this in the Corporation records. When for some reason or other enough night soil carts cannot go out into the divisions, then we are told that the rubbish carts are made to serve as substitutes. And finally the night soil is deposited in trenches in suitable depots from which they are removed after 6 months as manure for agricultural lands. But some time ago it was found out that even before 6 months the contractors were removing night soil for manure, and that with the knowledge and consent of the Acting Health Officer. And the Collector of Chingleput had to protest against that insanitary practice before it was put a stop to. The whole thing is execrable from a sanitary point of view and undoubtedly contributes to the unhealthiness of Madras.

Vaccination.

So far as to water supply, and drainage and conservancy. Now let us turn for a moment to the infectious diseases and the restraint of infection. Vaccination is compulsory in Madras, but the conditions under which it is carried on are not of the very best. Writing on this subject a Municipal Commissioner observed as follows:—

“Well, theoretically the whole Health department, including the Vaccine department, is under the Health Officer who is a qualified medical man. But, practically, you and I know that the Health Officer has no time to supervise the practical details of lymph preparation, and that exceedingly difficult process is left at present to a layman who has not even a nodding acquaintance with modern bacteriology. And what is the result? To make you understand clearly the dangers we are running by following

the present system, I shall have to explain the method of preparation of calf lymph briefly. When a calf is inoculated with cow-pox under the most perfect antiseptic principles it has to be taken care of with the utmost attention and watchfulness. The exact moment when the vesicle is ready to be punctured can only be detected by the trained and experienced eye. Usually the time for puncture is from 96 to 120 hours after inoculation. But it varies in each individual case within the limit above mentioned, and, in exceptional cases, even wide of those limits. No rule-of-thumb method will do, such as ‘puncture the vesicle so many hours after inoculation.’ Nothing but the trained professional eye can detect the exact moment. A too early or too late puncture will give you lymph which is incapable of conferring the requisite immunity, and may even be productive of mischief. Well as soon as the right moment arrives, the vesicle ought to be punctured, and all the lymph taken out at once and preserved for future use. But under unskilled management what is being done is, when the vesicles are ready—to the unqualified eye of the Corporation subordinate—some of them are punctured and others are left over for use next day. Thus the vesicles of *one* calf are being utilized for 3 or 4 days, and your later supplies of lymph will be found to be teeming with micro-organisms of different descriptions, of the true nature and method of whose operations you are absolutely in the dark. These outsiders are responsible for the severe redness and swelling and inflammation that you sometimes see round a vaccine vesicle. And these signs of severe reaction are taken by the ignorant vaccinator as an indication of highly successful vaccination. Far from being highly successful vaccination, in my humble opinion, they are most pernicious instances of ignorant vaccination. The result of this kind of vaccination is that during epidemics of small pox in this city it is very common to find people who are supposed to be protected, because they have undergone the process of vaccination, attacked by malignant small pox. Our present system of vaccination is a farce, and its continued existence is a scandal.”

That is as to the method of preparing the vaccine lymph. As to the efficiency with which the compulsory vaccination system is carried out, very recently another Municipal Commissioner found out by casual inspection that in 5 streets in Georgetown there were 74 unprotected children, 45 of whom were between 6 months and 1 year old, while 29 were above one year old. If 74 unprotected children can be picked out of five streets in one of the municipal divisions of Georgetown, then one wonders as to the effects of a Compulsory Vaccination Act. And even of those who are vaccinated, the most striking thing during an epidemic of small pox in

Madras is the large number of vaccinated subjects who are attacked by small pox. What sort of vaccination it was that these people were subjected to we are not in a position to express an opinion. But we have in our time seen some remarkable specimens of vaccination in Madras. A famous cricketer once said that "a man is not a bowler because he sends down 6 balls in an over." We feel inclined to say in the same way that a man is not a vaccinator because he can scratch a child's arm and inoculate with any purulent material called by courtesy 'vaccination lymph.'

Disinfection.

If vaccination as performed in Madras is unscientific, disinfection is mysterious. If the amount of disinfecting materials issued to the sanitary Inspector is a reliable test, then disinfection is being done in Madras on a very extensive scale. But what evidence is there that the Sanitary Inspector and the Conservancy Overseer really use all the materials they receive for the purpose of disinfection? What is to prevent them from selling the materials to the most convenient retail chemist and going through the farce of disinfection with either extremely weak lotions or even with undiluted Municipal pipe water? We should very much like to know what checks there are against such frauds being practised. It is only scientific curiosity that makes us ask the question. We are anxious to know the strength of the Corporation lotion as it is used.

Inspection of Food and Drugs.

The Madras Municipal Act is a grand and imposing piece of legislative work. And nowhere is it more grandiloquent than in the chapter relating to *Food and Drugs*. "It shall be the duty of the President," says section 353, "to make provision for the constant and vigilant inspection of animals, carcasses, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, milk, ghee, butter, oil and any other articles exposed or hawked about for sale" and so on. The "constant and vigilant" inspection is distinctly good. We are not aware of any inspection—not to speak of constant and vigilant inspection—being exercised over the sale of any of these materials. This section will not fail to raise a laugh among medical men in Madras. They are in a better position to realise the difference between the theory of section 353 of the Municipal Act and the actual practice, the results of which they have so often to deal with.

The Milk Depot.

We will only touch upon one more subject. To put down even to a small extent the alarming infant mortality in Madras the Corporation decided to establish a milk depot. We plead guilty to having supported

in these columns the establishment of Corporation milk depots. The Commissioners sanctioned the money and we believe that over 25,000 Rs. have been spent over a milk depot. But after such a grand beginning and the expenditure of 25,000 Rs. we are told that the working of the depot has come down to humbler conditions where milk is boiled in enamelled cans and given to applicants in bottles brought by them. What has happened to the grand sterilizer, or pasteurizer, or whatever it was that was brought out from England? And when the Corporation departed from its resolution to have its own cows which could be milked under proper sanitary precautions by its own subordinates and proposed to take milk from a contractor they ignored the lessons to be learned from Prof. Russel's experiments: "Where the cow when milked without any special precautions being taken there were 3,250 bacterial germs per minute deposited on an area equal to the top of a ten inch milk pail. Where the cow received precautionary treatment there were only 115 germs per minute deposited on the same area." But, however, we won't waste scientific facts by placing them before the Madras Corporation authorities. The so-called milk depot has not contributed to improve the health of the infant population of Madras. It has served to relieve the Corporation funds of something like 25,000 Rs. and it has set some great minds in Madras thinking about the difference between sterilisation and pasteurisation. We have placed enough before our readers to show them the sort of sanitary play-acting that is going on in Madras. We have here a parody of everything that sanitary science demands. The wonder to us is not that Madras is so unhealthy but that so many people are alive in it. The great Pickwick once made a note in his note book about a cab horse—"an instance of extraordinary tenacity of life in animals under peculiarly trying circumstances." We might say the same of human beings in Madras. We believe here in Madras that we are gradually acquiring immunity against insanitary conditions.

CORRESPONDENCE.

The Designation of Medical Men in India.

Sir,

With reference to the article on the above subject signed "Fair Play" published under the head of Correspondence in your issue for July 1908 on page 423, I beg leave to quote the following words from "Popular Lectures on Subjects of Indian Interest" introduced by the late Dr. S. Goodeve Chuckerbutty, M. D., Surgeon Major, Bengal Army, etc., in 1870 and to subjoin the copy of a letter from the *C. and M. Gazette* of October 5th, 1894,

regarding the status and qualifications of medical men in India, which is unequal and presumably arises from the fact of there being no public Medical Act extant for India. The late Dr. S. Goodeve Chuckerbutty remarks that "In this country every medical man is called a doctor, whether he be a Surgeon, physician, or apothecary; and no procedure is allowed on the score of academic distinctions. This is the case here even with Graduates of the British Universities. Consequently there is neither honor nor emolument to be gained by the possession of the Degree of M. D. In the public service no distinction is made between an M. D. and an L. M. S. and promotion goes by seniority. In private practice, experience and ability are preferred to rank and high fees and many a man who has no University Degrees, enjoys a popularity second to none. This, it is to be hoped, will be remedied in time, but for the present it exercises a great influence upon the minds of many, who very naturally hang back from examinations which can confer on them no apparent advantages." The quotation of the letter from the *C. and M. Gazette* dated October 5th, 1894, says:—"Only a Subordinate," writing to your paper, evidently has a high opinion of his own worth, as most of his department have. "Genuine Surgeon's" knowledge of the department's professional qualifications and abilities is very poor indeed, and the more he sees of the department the poorer it becomes; but whether their knowledge be great or small that is not the question. Is the so called diploma warrant I understood it was sufficient to get them placed on the register of qualified men in England or the Colonies? I know it is not; therefore, if they could not be qualified men in England, how could they be "Surgeons" in another part of the British Empire? Public Servants of India are promised on entering the Service at home "Medical advice free." What would they think of this advice if the man giving it although called a "Surgeon" in India, could only take rank as a quack in England. This is one of the strong objections to having an Indian qualified Assistant Surgeon as a Civil Surgeon. Surgeon is a purely Civilian title, and Medical officers must have it before they are allowed into the army. Captain and Major, etc, is added to denote their military status, "Only a Subordinate" knows little about the Apothecaries' Society; they can grant the title of Surgeon; Physician, etc., and their diploma is recognised every where; only a few Army Surgeons possessed it, and they all are members of a Royal College of Surgeons as well. If "Only a Subordinate" had the diploma of this society he would be proud to call himself an "Apothecary," and also would be a qualified medical man. As it is, I do not see how the W. M. Os could previously call them-

selves 'Apothecary,' as they were not Apothecaries and not qualified as such. I am afraid "Only a Subordinate" will always be, as he signs himself. "Only a Subordinate" unless he gives up disputing the plain unvarnished truth, and does, like many of his department and race have done—take out an English qualification and become a genuine Surgeon, Lieutenant or Captain instead of the bogus one, which he may become if he remains in the Subordinate Medical Service. I enclose an extract from the latest *British Medical Journal*, which asks exactly the same question I ask, and which all your letters from members of the S. M. D. evade. Let them try to register as Medical men in great Britain. If Great Britain won't have them as such, they ought not to be called qualified men or Surgeons in India.

ONLY A GENUINE SURGEON, *British.*

Extract from the British Medical Journal.

THE INDIAN APOTHECARIES.

Noyl writes. Your correspondent, "The Last Straw," begrudges the honorary rank of Surgeon-Lieutenant and Surgeon-Captain, recently conferred on Senior Assistant Surgeons of the Indian establishment, and says, "however estimable, these gentlemen are absolutely devoid of any medical qualification or licence to practice." He thus casts a great slur on those hard worked servants of the State, but speaks in complete ignorance of the professional status of these Assistant-Surgeons, which are practically those of a house surgeon of a military station and civil hospital. The journal makes the following editorial remarks. We would never endorse comments disparaging the functions and position of the subordinate medical service in India, least of all its meritorious seniors. In our mind it constitutes one of the most useful and indispensable of the Indian establishments. Nor can we desire to underestimate the efficiency of the medical training afforded by the Indian Colleges. We hardly think these were the questions involved in our previous correspondent's remarks. It was, by what legal right can the Indian Government confer by warrant the Civil title of Surgeon on those who do not hold the diploma of members of a corporation empowered to grant such a distinction?"

The title of Surgeon is now obsolete although still retained by the subordinate medical service except the Hospital Assistant class which should be changed to the more desirable designation of Sub-assistant Surgeon in order to organize the different degree of rank to each other.

COMPETENCY.

BOOK REVIEW.

We have received a copy of a small book called *Epitome of Urine Examination* by K. S. Agnihotri, Ph. G. Hospital Assistant, Panhala (Kolhapur State). It is a useful book to Medical Students and Practitioners. It is priced at As. 10 and is available at the *Mission Press, Kolhapur*.

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The Polyclinic. The Bristol Medico-Chirurgical Journal. The Medical Brief. The International Journal of Surgery. The California Medical Journal. The American Journal of Clinical Medicine. The Dietetic and Hygienic Gazette. The Good Health. The Indian Medical Gazette. The Practical Medicine. The British Journal of Children's Diseases. The Sanitary Record and Journal of Sanitary and Municipal Engineering. The Northumberland and Durham Medical Journal. The Canada Lancet. The American Journal of Ophthalmology. The China Medical Missionary Journal. The Medical Review of Reviews. The Post-Graduate. The Therapist. The Canadian Practitioner and Review. The Australasian Medical Gazette. The Caledonian Medical Journal. The Montreal Medical Journal. The Louisville Monthly Journal of Medicine and Surgery. The Monthly Cyclopædia of Practical Medicine. The Buffalo Medical Journal. The Ophthalmoscope. The Dental Era. The Madras Law Times. The Interstate Medical Journal. The Medical Notes and Queries. The Calcutta Medical Journal. Folia Therapeutica. The All-India Hospital Assistants' Journal. The Hospital Assistant. The New York State Journal of Medicine. The International Therapeutics. The Hospital. The Medical Review.

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Original Articles.

* THE X-RAY TREATMENT OF SKIN DISEASES.

BY

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(Late Clinical Assistant to the Skin and Light, X-ray and Electrical Departments, London Hospital).

I. Introduction.

DURING recent years many new methods of treatment have been recommended by numerous authorities for Skin Diseases, but probably none marked with such beneficial effects as the therapeutic uses of the X-rays. The terms "X-rays" or "Light" or "Finsen" treatment have hitherto been used in a somewhat loose way, and at the outset it must be clearly understood that in the ordinary sense of the word the X-rays have nothing whatever to do with light. They are not on the visible spectrum, nor have they the ordinary physical properties of light. The term "Light" should be reserved only for the use of rays of spectroscopic light or the ultra-violet rays, *i. e.*, the chemical or active rays—the therapeutically active rays, from which the heat rays are excluded by suitable means.

Pathological action of the X-rays.—BECK, in a paper quoted by MACLEOD¹ described the tissue changes in three stages :—

(1) *First degree.*—Here we have hyperæmia, exfoliation in scales, infiltration of inflammatory cells, and itching. These changes are accompanied by falling out of hairs and changes generally in structures such as hair follicles, glands and nails.

• Specially contributed to *The Antiseptic*.

1. *British Journal of Dermatology*, Oct. 1903.

(2) *Second degree.*—In this the inflammatory reaction is still more acute, and vesiculation is produced.

(3) *Third degree.*—Here the process may go on to actual ulceration, destruction of tissue, and even sloughing.

BECK looked upon the whole process as a result of chronic inflammation associated with colloidal degeneration of the elements of the tissue.

From a large amount of histological work on these conditions MACLEOD¹ brought forward the following propositions, which are practically the main opinions held now-a-days by all the leading authorities on the subject:—

(a) That small doses of X-rays have a stimulating effect on the elements of healthy skin.

(b) That in large doses, by long exposures, close proximity of the tube to the skin, or the employment of soft tubes, the rays are capable of devitalising the tissue elements interfering with the process of reproduction and causing their degeneration; and that this power is the result of a direct specific action of the rays.

(c) That the more highly differentiated structures, such as the hair follicles, glands, nails and blood vessels, are more readily and severely affected by the rays than the less differentiated epidermal cells of the fibrous stroma of the corium.

(d) That pathologically altered cells, whether of epiblastic or mesoblastic origin, are far less resistant to the rays than healthy cells, and are devitalised with small doses of the rays; and that this destructive action on diseased elements may be taking place while the healthy elements in the neighbourhood, instead of having their vitality inhibited, may be stimulated to a process of repair.

(e) That the action of the rays is cumulative, and that when the cellular degeneration reaches a certain degree the toxic products of the breaking down cells are capable of setting up an inflammatory reaction, which is a secondary phenomenon.

(f) That this inflammatory reaction is peculiar in that it occurs in a tissue the vitality of whose various elements has already been impaired by the action of the rays, and, in that it is associated with greater destructive changes than those produced by the active rays, is apt to lead to

1. (Brit. Journal Derm. 1906).

ulceration and necrosis, and is liable to be followed by an imperfect process of repair.

Regarding the action of the rays on Bacteria, authorities differ, some maintaining that it is impossible to check the growth of such by exposure to the X-rays, others that the growth actually flourished by such exposure, and some that the rays do destroy the vitality of bacterial cultures, but that, to obtain this object, the dose given must be greatly in excess of the maximum dose used in Radio-therapy, without producing a dermatitis. At any rate, in the treatment of Ringworm and Fevers, as will be explained in a subsequent article, there is no destructive action upon the Fungus, and cultures can easily be made from the hairs shed by the action of the rays.

Though now probably most observers are agreed as to the beneficial therapeutic effect of X-rays, a good deal of controversy is still going on concerning the dosage to be given, the frequency of the application, and whether a reaction should be produced in the skin or not. Undoubtedly the therapeutic effect is greater when such reaction is produced, but that visible signs of reaction are not necessary for changes to take place in the tissues is seen from the fact that epilation of the hair takes place without the production of an erythema of the scalp. But in the treatment of an epitheliomatous or rodent ulcer with hard, raised and beaded margins, even when the knife or cautery has previously been used on those edges, a much better result is invariably obtained by the production of a definite reaction.

The idiosyncrasy of the patient (which, however, in the matter of weak exposures may be neglected), the variability of the reaction (varying according to the tube used, the vacuum at which it is working, the kind of interruptor and frequency of interruption), and the physiological and pathological factors affecting reaction (*e. g.*, the colour of the skin and part of body treated, the pigmented portions of the skin being slightly less susceptible than the delicate fair portions) must all be taken into consideration in the application and treatment.

The necessary apparatus for Radio-therapy can be briefly summarised as follows:—

Coil.—12-15 inch spark gap.

Interruptor.—Dipper.

Tochymeter.—Attached to Interruptor (not imperative but very useful.)

Switch-board.—Ampere and Voltmeter with necessary switches and commutator.

Milliamperemeter in secondary circuit.

Valve Tube or, better still, a series of spark gaps to check inverse currents from coil.

Tube-holder.—Dean's "Universal" which gives practically every necessary movement and is comparatively inexpensive.

Lead glass shield for tube.—Giving extra advantage of "transparency" with an opacity of about 80 per cent; contains pastille holder.

Primary Current.—If possible 50-70 per cent. volts: continuous.

Primary Amperage.—According to condition of tube. Average in London Hospital about 8 amperes.

Tube.—Automatic self-regulating.

Pastille.—To be kept away from direct light whilst treatment is going on, and should be examined afterwards in diffused day light or in a blue light.

The fact of the inability to at all correctly estimate the probable result of a dose given according to time of exposure, owing to different tubes so varying and the same tube altering almost every few minutes, has been largely overcome by the use of Sabærand's Pastille. The pastille consists of Platino-Cyanide of Cadium and is yellow in colour. It is placed in a pastille-holder fitted on to the lead-glass shield, and placed so that the yellow surface is exposed to the rays at a distance midway between the anode of the tube and the area of skin being treated. When a certain dose has been given the pastille turns from the yellow tint to an orange tint, and this standard tint is called the *B tint*, and the dose so given *Sab. B dose*.

This dose has been found to be the exact dose required to be applied to the scalp in order to cause a complete epilation without producing an erythema or dermatitis.

The dose given so as to just produce a commencement of change of colour is called the *Sab. B—dose*, and the dose which produces a deeper orange tint the *Sab. B+dose*.

Usually in treating cases of Lupus, until the idiosyncrasy of the patient to the rays has been well established, the *Sab. B—dose* should be the maximum, but the hard edges of a Rodent of Epitheliomatous Ulcer practically always require a full *Sab. B+dose*.

The reaction will come on in about a week, and in most cases will have passed in 14 days, when the patient is examined, and, if necessary,

another dose can then be applied with impunity. In some cases a much longer time will be necessary before the reaction has passed off, varying according to the individual patient, but a second dose should never be applied until the reaction of the previous one has entirely subsided. With this system of dosage the variability of the tube, the vacuum at which it is working, and the undoubted cumulative effect of the rays, may be entirely neglected.

Consequently to ensure the best results the pastille must be constantly watched during treatment. Several hundreds of applications are thus given weekly at the "London" with excellent results, and since the introduction of this method an X-ray burn or slough is practically of unknown occurrence. The method of applying small doses at more frequent intervals has also been widely used at the Hospital, but from a very large experience has, for most cases, been almost entirely given up for the method described and with infinitely better results, both as regards the duration of treatment required and also the more permanent and lasting results.

(To be continued.)

* ON INFANT FEEDING.

BY

JAMES BURNET, M. D.

There is, perhaps, no more difficult problem which the general practitioner has to solve than that of infant-feeding. In these days breast-feeding is exceptional, and yet we must lay down the law that every child who is not breast-fed is being improperly fed. The breast-milk is the child's by right, and when he is given something else instead, he is being robbed by his parent. Even breast-feeding, when carried out, is often improperly managed, either from want of knowledge or from lack of care.

The commonest error committed in connection with breast-feeding is to give the child the breast too often. Whenever the infant cries he is put to the breast, with the result that his stomach becomes overloaded, and he cries the more. In this way a vicious circle is started; and this too often results in breast-feeding being stopped altogether under the most erroneous assumption that the milk is not satisfying the infant's requirements. This is a most fatal mistake, but is being daily committed by ignorant mothers and nurses. In all such cases when the baby is regularly nourished his indigestion ceases, and he is no longer cross and fretful, but lies contented in his cot.

* Specially contributed to *The Antiseptic*.

The times to be observed in breast-feeding ought to be scrupulously adhered to. During the first two months the infant should have the breast every two hours; from the second to the sixth month the interval should be increased to two and a half hours; and after this until the ninth or tenth month, when he should be weaned, the breast may be given every three hours. One feed during the night is sufficient. If these intervals are strictly adhered to as a general rule, the milk supply will be found satisfactory and the infant will continue to thrive.

Another common error is to give other things besides the breast-milk. Such foods as gruel, bread and milk, rusks and milk, are often fed to young infants, who are on the breast. The mother fancies her milk is not sufficiently nourishing, and so she gives other things as well which only upset the infant's digestion and, time after time, produce vomiting and diarrhoea, while in some instances this practice leads to other and even more disastrous results. The onset of rickets in breast-fed babies often has its origin in this practice. If, as we believe, rickets is a catarrhal disease, the gastro-intestinal catarrh so induced may readily enough lead to the development of rickets in the infant so fed.

There are cases, however, in which the mother cannot nurse her child, or in which she should not nurse it, even if she could and would do so. It is, then, that we must carefully select a suitable substitute for the breast-milk. In speaking of artificial feeding we do well to consider the subject under various headings. The following points must be specially attended to:—

1. *The selection of a suitable feeding-bottle.*—This must be of the simplest pattern possible. The ideal bottle is a somewhat oval-shaped one with a simple rubber teat on the end. In any case the old-fashioned long tube must be avoided as this cannot be kept clean. Two bottles should be supplied, and the one not in use must be kept in a bowl of water containing a little bicarbonate of soda. Just before use the bottle should be thoroughly rinsed out with boiling water. Care must always be taken to see that the hole in the teat is neither too large nor too small. If too large the milk will flow too rapidly, and if too small the young baby may not have strength to draw the milk through it. The hole should be large enough to allow of the milk dropping through, and no more.

2. *The selection of the substitute for breast-milk.*—Cow's milk is best in every case. All artificial foods are unsuitable, either because they contain starch, or because they are made up with water, or for some other reason. There is no substitute for breast milk save the milk of some

other animal, and that of the cow is best because it is usually the most readily accessible and most generally suitable. Ass's and goat's milk are sometimes used with advantage, but they are often difficult to obtain, and, in some cases, do not agree so well as ordinary milk.

3. *The dilution of the milk for different ages.*—Cow's milk contains too much proteid, and so must be diluted before being fed to infants. The best diluent is plain water and not barley water which is so often recommended. In the majority of cases the milk should be brought to the boil (not boiled) before being used. For a baby of two months old four table-spoonfuls of equal parts of milk and water may be given. Below that age more water than milk is the rule. Above that age we gradually increase the amount of milk and reduce the amount of diluent until at the ninth month the infant is being fed on pure milk. In some cases it is a decided advantage to add from a half to one teaspoonful of cream to every or to every alternate bottle.

4. *Intervals of feeding.*—These must be rigidly adhered to as in the case of breast-feeding. In fact the intervals are the same in both cases. The infant should be waked up when his feeding time comes round. He should be laid down in his crib after being fed, and not played with, as this latter practice is very apt to induce vomiting, or at all events regurgitation of some of the food just taken. He should have only one feed during the night, and even this, in some cases, may be found unnecessary. Some healthy babies will sleep from 11 P.M. until 6 or 7 A.M. without waking, and this is certainly a habit to be encouraged.

And a word or two on *sterilized milk*. This we regard as a very bad form of nourishment. In the process of sterilization the nourishing properties of the milk are seriously interfered with. The result is that infants so fed rapidly become anæmic, suffer from constipation, and frequently develop rickets and scorbutus. They are always feeble, and much more liable to suffer from infantile diseases than those who are fed on unheated cow's milk. These remarks apply also to condensed milk which, when diluted, is very poor in fat, and readily induces rickets in those who are fed for any length of time on it alone. Artificial foods, likewise, as we have already pointed out, must be condemned for similar reasons. They produce fat "photograph" babies who are rickety, flabby and generally unhealthy in every respect. The number of such so-called foods is daily growing, and so too are the risks of rickets and other diseases which undoubtedly result from their indiscriminate use to the exclusion of breast-feeding and the employment of suitably diluted cow's milk.

Our Contemporaries.

MEDICINE.

The Significance of the Chlorids in the Urine.

Next to the urates the chlorids may be regarded as the most important group of solids in the urine. From ten to fifteen grams, estimated in sodium chlorid, are excreted daily. Of course the amount of chlorids excreted depends ultimately upon the amount ingested, but no satisfactory explanation has been offered for the great diminution of the excretion which is observed in fevers. The gradual increase is as important a sign as the fall of temperature. The increase of chlorids excreted is often the first sign of improvement in pneumonia. The disease has reached a grave crisis when the chlorids are absent. Strangely in these conditions the ingestion of chlorids may go on while the excretion becomes less and less, and still an excess of chlorids is not present in the blood, but accumulates in the other fluids and tissue of the body. The sudden return to normal of the ingestion-excretion ratio has been termed by ACHARD and SANBRY "chlorine crisis."

In five fatal cases of pneumonia EMERSON (Clinical Diagnosis, 1906, p. 122) describes a steady fall in the chlorids until the end in three of the cases. In one case death was preceded for six days by entire absence of chlorids in the urine. In cases in which the fall in temperature was succeeded by several days of slight fever the chlorids did not increase until the temperature fell to normal.

In chronic disease, it is shown that if the output drops as low as two grams, not depending upon a diminution of the amount ingested, it is a grave sign. Without explanation it is high in some conditions and low in others. The inhalation of chloroform increases the chlorine excretion. It is very low in meningitis. In typhoid it is only moderately low. It is said to be increased in cirrhosis of the liver.

The work of WIDAL has shown its retention in nephritis. In this disease, even when the excretion of other solids is normal, there may be a retention of chlorids. The presence of these salts in the tissues gives rise to edema. Many of these observations remain to be reconciled. We have learned practically that the estimation of the chlorids excreted gives a key to the severity of certain diseases, and that, inasmuch as these salts in the tissues cause the edema of nephritis, this edema may be overcome by diminishing the amount of chlorids ingested.—*New York State Journal of Medicine.*

Nitrogenous Metabolism in Epilepsy.

A. J. ROSANOFF, King's Park, N. Y., reports experiments undertaken to determine whether or not in epilepsy the excretion of ammonium salts in the urine varies in any way from that in health, and if so, whether or not the variations bear any relation to the seizures. The object was not to estimate the total amount of ammonia excreted in twenty-four hours, but to determine how the rate of excretion varies immediately before and after seizures. Seven cases of idiopathic epilepsy were selected for the investigation; samples of urine were taken at two-hour intervals and put away separately in a refrigerator, with a few crystals of thymol to prevent putrefaction. When a seizure occurred, all were thrown out, with the exception of the last one or two which were analyzed. The urine passed immediately after the attack was also thrown out, as it was largely that secreted before the seizure, but that obtained from one-half to two hours after was saved and analyzed. The total nitrogen was estimated by KJELDHAL'S method. FOLIN'S method was used for the estimation of ammonia, only modified by allowing the air current to pass through the urine for six hours instead of an hour and a half. The results obtained show that the ratio of ammonia to the total nitrogen varies much more in epileptics than in normal individuals, and that the variations bear a constant relation to the seizures. Immediately before a seizure this ratio corresponds to the normal, while immediately after an attack or series of attacks, this ratio invariably rises, often far above the normal standard. He found no exception to this in the cases studied. FOLIN found that in normal individuals the greatest was 1.3 per cent., while the average was less than 1 per cent. In ROSANOFF'S cases the variation ranged from 1.1 per cent. (only two specimens examined) to 4.7 per cent. He does not venture to offer conclusions other than that it can now be considered firmly established that nitrogenous metabolism, as it occurs in epileptics, presents definite and striking variations from the normal, and that these variations occur in constant connection with the seizures.—*Journal of the American Medical Association, April 11, 1908.*

Xerostomia from Atrophy of the Salivary Glands.

L. DUBREUIL-CHAMBARDEL (*Gazette Medicale du Centre*, Mar. 1, p. 33.)—A man, aged 61, was seen in May, 1906. He complained that his mouth had been dry for some time. He was in good health and had never had any of the eruptive fevers, except perhaps measles in childhood, or suffered from mumps or syphilis. For 2 years there had been increasing difficulty in mastication which caused him to drink much to help

him to swallow food. At the same time he spat less and less. His appetite and digestion were good.

He was strikingly thin, but he said that he "had never been fat." His face was drawn and his whiskers concealed a depression of the parotid regions. The parotid glands could not be felt. On the posterior border of the masseter was a small hard lump, possibly the vestige of the parotid gland. The mucous membrane of the mouth was dry. The tongue was of brick-red colour, hard, and retracted. The teeth were in a bad state. The normal projections of the sublingual glands were replaced by depressions. The orifices of STENSON'S ducts were visible, but a horse-hair could not be passed into them farther than 5 mm. The orifices of WHARTON'S ducts were obliterated. Pressure on the parotid and submaxillary glands did not cause any discharge of saliva. Mastication of bitter substances and electric stimulation did not provoke any secretion of saliva. Only the glands of BLANDIN and WEBER seemed to furnish a small quantity of saliva. The sense of taste was diminished and almost abolished in the anterior half of the tongue. The lacrymal glands appeared to be normal. Seventy oz. of normal urine were secreted in the 24 hours. In October the patient was again examined and his condition was found to be the same.

The writer can find recorded only one similar case. In 1907 Prof. ZAGARI described in *Il Policlinico* the case of a married woman, aged 50, whom he saw in July, 1901. In April 1900, she had an attack of influenza. A month after recovery she began to notice dryness of the mouth which gradually increased until she could not spit. In order to masticate she was obliged to take large quantities of fluid. In January, 1902, she commenced to observe a loss of taste, only recognising salt and sugar when placed on the tongue in large quantities. At the same time she progressively wasted, though appetite and digestion were good. In June there were generalised hypertrophy of the lymphatic glands and complete dryness of the mouth and absence of saliva. The sense of taste was abolished on the anterior two-thirds of the tongue. In the parotid region was a depression and on palpation instead of the parotid gland a nodule of the size of a hazel-nut was felt. The submaxillary glands could not be found. The symptoms increased and the patient died from marasmus in September, 1902, 30 months after the onset of the disease.

Prof. ZAGARI attributed this result to failure of the internal secretion of the salivary glands.—*The Medical Review*.

Lung Troubles after Anæsthetics.

Dr. OTIS B. WIGHT, a former house officer in the Johns Hopkins Hospital, has written an interesting and instructive account of the pulmonary complications that follow anæsthesia, in the "Johns Hopkins Hospital Bulletin." He bases his remarks upon an analysis of 9,000 cases anæsthetised in the gynæcological wards, so that his statistics apply to adults. It would be tedious to enter into lists of figures; for those the original paper may be consulted. It is rather with the general conclusions that we would deal.

A greater number of the post-operative pneumonias are lobular rather than lobar in type; nevertheless the lobar type is not absolutely uncommon. The second or third day after the operation is the most usual time for the development of the symptoms. The latter consist of a shivering attack or rigor, pain in the affected side of the chest, cough and pyrexia. The right lung is affected more often than the left, but the distribution in the right lung is variable, the upper part being almost as frequently involved as the lower. This is the reverse of what would be expected if the trouble were due to inhalation of septic particles from the mouth. There is no marked liability for empyema or abscess of the lung to result, but the mortality is about the same as it is for lobar pneumonia due to the pneumococcus in adults generally—namely, about 33 per cent. of the affected cases.

The lobar pneumonia which follows anæsthesia presents certain clinical points of distinction from ordinary lobar pneumonia: (1) The pyrexia tends to be less marked and less maintained. The patient's temperature rarely reaches 103° F., and the curve is more irregular and not so steady as it is in typical pneumonia; (2) the duration is usually shorter; (3) there is rarely an obvious crisis; (4) complications such as empyema are exceptional; (5) the physical signs of the lung trouble are often ill-marked. The consolidation seems to be central rather than at the surface of the lung, so that it may be several days before abnormal signs can be detected at all; slight impairment of percussion note, with a few crepitant rales, associated with pyrexia and a quickened pulse, may be all that can be detected as indications of the pneumonia. Bronchial breathing and marked impairment of the percussion note may not be observed at all, or only when the trouble has existed for some time and the temperature is already beginning to fall; (6) cough is neither marked nor severe as a rule, and the sputum is seldom blood tinged or rusty.

The duration of the anæsthesia plays a considerable part in the production of the pulmonary complications. In Dr. WIGHT'S series, out

of all the cases that were under the anæsthetic for one hour or less only four developed pneumonia; whereas eleven patients suffered from the latter when the anæsthesia had been prolonged for two hours or more. The position of the patient in bed after laparotomy has also an immense influence. Until recent years it has been customary to keep the patient lying flat. It is now the rule to adopt the semi-sitting posture as soon as the immediate results of the anæsthetic have passed off—this posture being maintained by means of props and pillows without the least exertion on the patient's part. This procedure is now generally adopted in England, and the benefits of it are obvious, particularly in cases of general peritonitis.

Wound healing is not materially affected by the development of pneumonia. This is in accord with the general view of all writers upon the subject.

It is not at all easy to distinguish with certainty between broncho-pneumonia and lobar pneumonia after operations, although some observers try to separate even a third group of cases, to which they give the name hypostatic pneumonia. The latter is chiefly characterised by the development of small patches of pneumonia at the bases of the lungs in elderly people and in patients seriously weakened by disease. If hypostatic and broncho-pneumonia be classed together, 17 of Dr. WIGHT'S cases developed it and two died, giving a mortality of 12 per cent.

The trouble was very similar to that of lobar pneumonia, except in duration. It generally appeared from one to three days after operation and lasted from 7 to 12 days in the cases that recovered. The onset was by chill and rise of temperature, the latter being considerably higher in the evening than in the morning, and not following the usual curve that the temperature does in lobar pneumonia. Cough was not a marked feature, and cyanosis and very rapid respirations were rarely noticed.

The physical signs usually consisted in mucous rales throughout both lungs, especially in the lower lobes; over small areas of lung tissue bronchial breathing might be heard, and some impairment of percussion note could be detected. This impairment of note was often not discernible until shortly before the temperature began to drop.

A true fibrinous or serous pleurisy unassociated with pneumonia is one of the rarer complications of anæsthesia. Only a small number of the patients who actually has pneumonia develop the characteristic creaking or grating sounds of pleuritic friction. The few cases of fibrinous pleurisy that did occur had the typical symptoms: sharp stabbing pain in the side, dry painful cough, and moderate pyrexia. These disappeared after a few days, and the healing of the wound was not retarded. A smaller

but unknown percentage of these patients develop an effusion with the typical physical signs. In no case was paracentesis thoracis needed. Pleurisy developed in nearly every instance within the first 48 hours; no case proved fatal.

Thirty cases suffered from bronchitis simply, and all of them recovered. The symptoms and signs were chiefly a feeling of tightness in the chest, slight pyrexia, and squeaking rhonchi or non-consonating rales, mainly found at the bases of the lungs without impairment of the percussion note. The patients so affected were at no time seriously ill, and the signs and symptoms cleared up promptly without retarding convalescence.

In order to minimise the risk of post-operative lung complications, particularly in the weakly or in the old, disinfection of the mouth and nose by mild antiseptic gargles and douches should be a routine measure to be adopted and not only just before the operation, but also for a day or two before it wherever feasible.

Careful administration of the anæsthetic, preferably by the drop method on an open mask, given slowly and steadily at first so that the patient is not suffocated and does not struggle, is important. The head should be low, and kept upon one side, so that mucus flows outwards instead of down the throat. Much more care than is the rule should be observed in trying to keep the patients warm and dry whilst they are upon the table; and, when the operation is over, the patient should be warmly covered up whilst being carried back to bed.—*The Hospital*.

The Treatment of Whooping-Cough.

BY

EDMUND HUGHES, M. R. C. S. (ENG.) L. R. C. P. (LOND.)

A number of new remedies for whooping-cough have been suggested of late years, and the main object of this article is to bring these together in a convenient way. After the end of the first week the child may be provided with an abdominal binder, which is to be worn night and day throughout, and is in very many cases valuable in limiting the paroxysms and preventing vomiting. If the binder is to succeed it must be well fitting and sufficiently tight. Hospital out-patients may have a muslin or partly woollen material adjusted on the spot by a nurse, but the better plan is to have a belt made of flannel or linen front and back with some slightly yielding material, as elastic webbing or stockinette, let into the sides, the back being laced up to the degree of tightness necessary for control of symptoms without undue constriction. Dr T. W. KILMER

(New York) advises the width to be from four to eight inches, according to age, the length three inches less than the abdominal girth at the navel. These details are important, for the success of the binder probably depends on their being followed.

For drugs an innovation is tincture of *Grindelia Robusta*, given in half-drachm doses in sweetened water four times daily. Two flourine compounds have had favourable notice—*i.e.*, antitussin ointment (one daily inunction of about 3ss), and solution of fluoroform, a drug whose use in pertussis was reported on this year by TESSIER in France, but which needs further testing. If a nightly sedative is found necessary, codeine (gr. $\frac{1}{2}$ – $\frac{1}{8}$), heroin (gr. $\frac{1}{8}$ – $\frac{1}{16}$), or chloral 5 to 10 grains in enema may be tried. Other recent combinations are codeine or morphine gr. $\frac{1}{4}$ in syrup of tolu 3j., from 3ss–3j. being given three or four times daily; and this dose may be combined with 1, 2, or even 3 grains of antipyrin after the second year, according to age and severity.

The above measures, together with a diet limited in starch and excluding foods likely to irritate the pharynx (such as gritty preparations and acids in food or drink), seclusion from non-infected children, and abundance of fresh air, summarise modern ideas in uncomplicated cases. But there are three or four further suggestions in recent literature that call for notice. One is vaccination. The possible efficacy of this has been known for some years, but latterly a fresh series of cases has forced it on the practitioner's attention as worth a trial in obstinate cases. Another is chloroform narcosis for twenty minutes to full surgical degree. Only a few days' effect is claimed for this and in some cases, but the results are so far contradictory. In one case of the writer's, symptoms recurred with their former vehemence as soon as the patient had recovered from the immediate effect of the anæsthetic, but four days later the cough, which hitherto had been extremely severe and prostrating, rapidly abated, and afterwards hardly needed treatment. The latest suggestion of all is to give the milk of animals which have been injected with antitetanic serum (for particulars see *Lancet*, June 20, 1908).

Though formalin vapour and carbolic acid inhalations are of doubtful value, iodide of ethyl vapour may be inhaled with the object of mitigating cough. Oxygen inhalation is especially called for when cyanosis is so marked and persistent that convulsions or lung collapse have to be feared. It is most effectively administered at night.

done to hasten convalescence by a close attention to the digestive tract. A frequent late syndrome is complete loss of appetite with a slimy tongue, great restlessness at night, and intermittent looseness of the bowels. This may often be most effectively met by a mixture of sod. bicarb. gr. vj.-xij. in infusum rhei 3ij.-iij. three times daily between meals, followed in a few days by a mixture of tincture of hydrastis, sod. bicarb., gentian and an aromatic, and a small dose of calomel every second or third night. With these a diet should be arranged so as to include a minimum of sugar and starch for weeks together.—*The Hospital*.

A New Remedy for Whooping-cough—Fluoroform.

(*La Clin. Infant.*, January 1, 1908, p. 32).—TESSIER treated 117 cases with this substance with excellent results. There were no unfavourable symptoms, even with excessive doses of the drug, which was well tolerated and acted promptly. On the second or third day the number of paroxysms markedly diminished—by one third or a half; their intensity also decreased and they disappeared entirely in from ten to thirty days. It rarely happened that there were more than ten paroxysms a day after one week's treatment. No lung complications occurred. Fluoroform is used in an aqueous solution of 2·8 per cent., of which one drop is given in water after each attack on the first day, two drops on the second day, and so on, without exceeding a total of one hundred drops per day for children less than one year old. From the age of two to four years TESSIER gives ten drops four times a day to begin with, increasing the dose up to two hundred drops a day. Beyond the age of four years fifteen grammes of the solution can be given daily in doses of a table-spoonful. Adults attacked with this complaint may take thirty grammes daily.—VINCENT DICKINSON.—*The British Journal of Children's Diseases*.

Hypodermic Injections of Oxygen in Sciatica.

SICURIANI (*Gazz. degli Osped.*, March 29th, 1908) has obtained good results in the treatment of sciatica and allied diseases with hypodermic injections of oxygen. He treated thirteen cases of sciatica, two of multiple chronic arthralgia, one neuralgia of the right crural and the neurasthenic rachialgia. The eleven cases of simple primary sciatica, of varying duration (one to twelve months), and all completely disabled, were cured in periods varying from fifteen days to one month, and after six to ten applications. About 300 c. cm. of oxygen were injected at a time and on alternate days. There was no doubt as to the evident analgesic effect of the treatment. In compression or symptomatic sciatica it does little or

no good, so that a purely mechanical explanation of its therapeutic properties will not suffice. More probably it acts by its biochemical effects on tissue change. The necessary apparatus is simple, easy of appreciation, and not costly—in all these respects contrasting favourably with X-ray treatment.—*British Medical Journal*.

Diabetes Mellitus—Association of Tuberculosis of the Lungs with.

The writer reviews the literature on this subject, finding from it that the association is a frequent one and that in the early stages of this combination one or the other of the two maladies is often overlooked. In diabetes the pulmonary affection often runs an analytical course. The face may be cyanotic instead of pale. Cough is often slight and expectoration scanty. Sugar may sometimes be demonstrated in the sputum. Appetite may be preserved and even supernormal. There may be no fever, and sweating is rare. When phthisis develops in a diabetic, polyuria and the sugar output are often both lessened. The recognition of the synchronous presence of both diseases affects the prognosis because it conditions the nature of the food and medicines which should be given. Administration of large quantities of fats and oils may hasten the onset of diabetic coma. A diet of meat, fat, cheese, and eggs is good for both diseases. Milk may often be permitted in diabetes, especially when sour or artificially fermented.

The drug of greatest value in diabetes, opium, with its derivatives, codeine and heroin, is also indicated for the cough, the hæmorrhages, the diarrhoeas, and to promote the euphoria of the advanced consumptive. The diabetic consumptive is very often a febrile, and for such cases exercise in moderation in the fresh air is not contraindicated. Such exercise is distinctly useful for the diabetic, as it has been shown that larger quantities of carbohydrates are tolerated on account of the increased consumption of sugar by the muscles during exercise. Creosote and guaiacol carbonate, which have continued in favour for tuberculosis, are also believed to relieve the symptoms of diabetes, notably the thirst and polyuria. Arsenic and strychnine, which have their advocates in diabetes, are good systemic tonics for the consumptive. Hydrotherapy is of undoubted value in both diseases, as are also the alkaline mineral waters, woollen clothing next the skin, abstinence from tobacco, freedom from worry and care, and a quiet life in the country in a mild, dry, and equable climate.—H. L. SHIVELY.—*New York Medical Journal*, May 16, 1908.

SURGERY.

Treatment of Diseases of the Urethra.

JAMES MACMUNN.—*Medical Magazine*, June, p. 336).

Length.—A measurement of the urethra over $8\frac{1}{4}$ in. indicates prostatic enlargement. But by "crowding back" the penis an instrument of 7 in. may be passed into the bladder.

Contour.—Sir H. THOMPSON'S curve is generally accepted, but it is a mistake in the absence of prostatic enlargement to base instrumentation on that standard and to use large curved sounds to which the urethra must accommodate itself. The ordinary sound is a lever of the first order, and its use is subject to the agency of an underlying fulcrum of the suspensory ligament of the penis. The urethra is a closed passage at rest and is rifled owing to the obliquity of its longitudinal rugæ. In using instruments the primary point to bear in mind is that one is dealing with a very mobile part suddenly grafted on to a much more fixed and narrower part at the triangular ligament. The chief methods of reducing this difficulty are to stretch the penis well on the instrument, and to make the latter follow the roof and avoid the sacculated floor. The writer finds a straight instrument—say an endoscopic tube—as easy to pass as a curved one. But in the ordinary way a large straight instrument should scarcely ever be passed through the deep urethra. The safe way to pass it is to make it practically a curved instrument by inserting a rubber catheter into it to constitute a pilot.

Calibre.—There are two calibres—the physiological, that required for the passage of the urinary stream, about 16 mm., and the surgical, the justifiable limit of extensibility to instruments. To the non-recognition of these facts is due the absence of a proper definition of stricture, some finding it where it is not, others missing it where it is. A stricture is an organised deposit in or around the urethral wall interfering with physiological or surgical calibre or with both. If with the physiological alone, there is a "stricture of large calibre," which cannot produce back pressure. The surgical calibre means the utmost capability of expansion without breach of tissue. The extreme of distension is opposed by the fibrous surroundings of the urethra. The writer measures this by an automatic urethrometer which exercises a pressure capable of variation on the urethral walls and takes urethragrams. These show that the anterior urethra is not funnel-shaped outwards, as is said, but narrows slightly in the middle, where it has often been cut in mistake for stricture. The prostatic part is the most expansile; then the membranous part and finally the bulbous.

Treatment of gonorrhoea.—Protargol, arhovin and gonosan are the best remedies. The great secret is to retain them as long as possible and to use fair pressure, so as to aid in their permeation. The writer has invested a clip to act as mechanical fingers for retaining injections. Lead lotion round the penis, is valuable, as cold is inimical to the gonococcus. There is a tendency to give up irrigation, as many serious complications result from it.

Treatment of acute posterior urethritis.—The posterior urethra may be anaesthetised by rectal injections of cocaine, or by belladonna, morphia and ichthvol suppositories. But the best method is the use of hot rectal douches gradually made cold or tepid while internal remedies, such as arhovin, sautyl and urotropine, are given.

Chronic urethritis.—Give aspirin or an opiate, prescribe rest and flush the lower urinary tract with weak silver solutions after the first use of an instrument. Next locate the lesions. Well flush out the anterior urethra and use the two glass test, but this must not be relied upon too much. The second glass may be clear and yet the posterior urethra may be involved if micturition has occurred a short time before. Prostatic secretion in the erect posture may not flow into the bladder. Next examine for points of tenderness and points of contraction in the anterior urethra with acorn bulbs. For the deep urethra the writer recommends rhomboid-shaped bulbs which will not hitch much on the layers of the triangular ligament. The prostate and vesicles should be examined by the rectum and perhaps their secretions pressed out and examined under the microscope. The urethra should be felt over a sound or bougie for swollen follicles and infiltrations. On the next occasion the endoscope may be used, but scarcely ever for the deep urethra unless treatment is to be combined with inspection.

Treatment of chronic urethritis.—If there be only catarrh astringent injections and soluble bougies may cure, but the injections must be copious. Granular patches require endoscopic means. If soft infiltration ("choked urethra") accompany the catarrh, sounds or bougies must be occasionally used with the injections. Sclerotic patches, infiltrations, and narrowings require cautious over-distension by large sounds or dilators, which may be followed by endoscopic application of silver or iodine solutions.

Chronic prostatitis.—The modern treatment is massage, but the writer prefers to use a double-channelled douching instrument by which pressure can be combined with douching. Hot and cold douching is best. Graduated exercise by relieving the pelvic venous circulation is also useful.

Follicular urethritis is partly known by its intermittency of discharge, especially for a day or two after seminal emissions. It is difficult to cure. Injections are of little use in the ordinary manner. The writer has had much success from emptying the follicles with an exhausting apparatus and then forcing injections into them.

Stricture.—Dilatation with sounds is the best treatment. It should be very gradual and repeated when the irrigation of the first sitting has disappeared. They should not pass into the bladder; the risk increases as they are passed beyond the triangular ligament. Hot baths and pressure and heat to the perineum after retiring aid absorption. A soda, or any round, bottle may be used for the purpose. Urethrotomy may be necessary. The current view that it is only palliative is wrong. An attempt should be made to avoid "the cicatricial splice," which results from the ordinary treatment. The object should be to secure healing by scabbing and the spreading of epithelium from the adjacent mucous membrane over the surface of the wound. This can be done by the use of ointments and sounds, as shown by the writer (*Brit. Med. Jour.*, June 15, p. 1412). One reason for the failure of radical cure is the unrest irritation from micturition. This can be prevented by the intermittent or continuous use of a small rubber catheter, injecting orthoform or cocaine ointment beforehand, the eye of the catheter pointing to the trigone and a suction apparatus being attached.—*The Medical Review.*

Intestinal Perforation by Ascarides.

JULLIEN (*Jour. des Praticiens*, Apr. 18, p. 247).—An Algerian soldier under treatment for simple bronchitis was seized with abdominal pain, most severe in the right iliac fossa. The pain persisted all day in spite of morphia and hot applications, and there was slight resistance to pressure but no distension of the abdomen and flatus was passed. The tongue remained moist and the pulse satisfactory, but the temperature gradually rose till at 4 P.M. it reached 104°. At midnight the patient vomited abundantly. There was a large ascaris in the vomit. The patient became collapsed so rapidly that his state contra-indicated operation.

At the necropsy the peritoneal cavity was found to be filled with a turbid effusion, the intestine being covered with a thick purulent exudation. The effusion had no faecal odour but the changes pointed to an intense infective process. A circular perforation of the small intestine was found 30 c.m. below the ilio-cæcal valve, 4 or 5 mm. in diameter. The mucous membrane around the perforation presented a large irregular but superficial ulcer which did not involve the other coats of the bowel, the

actual perforation being circular and sharply punched out. The small intestine contained about a dozen ascarides one of which was engaged in the pylorus and 3 or 4 were found in the neighbourhood of the perforation. There were none in the large intestine and none were found in the peritoneal cavity. With the exception of bronchitic changes the other organs were healthy.

While many cases of grave symptoms due to ascarides have been recorded, the possibility of their causing perforation of a healthy intestine has been denied. The writer thinks that this case tends to show the possibility of such an occurrence. In this case the intestine was healthy, and there were no prodromal symptoms. The severe pain lasting 12 or 14 hours without other indications of intestinal lesion he regards as representing the period of attack by the parasite on the wall of the bowel. The acute peritonitis he regards as occurring on perforation of the serous coat and consequent infection of the peritoneum. The theory that the worm caused merely the superficial ulcer, which, acting as a point of entry for infection, led to perforation by sloughing of the deeper parts, he thinks agrees less closely with the symptoms and the *post-mortem* appearances.—*The Medical Review*.

A Method of Obtaining Rapid Healing of Acute Abscesses.

JAMES PHILLIPS, F. R. C. S. [Ed.] (*Brit. Med. Jour.*, May 16, p. 1163).—The writer has for 7 years treated acute abscesses by a method under which rapid healing takes place and constitutional symptoms disappear. It is based on the principle that if all the dead material is removed, and means taken to prevent the collection of further dead material to act as a culture medium, rapid healing will take place. ERICHSEN says: "In wounds which unite by granulation there is always some source of irritation which continues to act for a considerable time after the injury and thus prolongs the inflammatory process with formation of pus." The writer contends that in almost every case of acute abscess there need not be left any "source of irritation" to "continue to act for a considerable time" and that unless dead bone or some other irremovable irritant is present, something not unlike primary union can be obtained.

Method.—(1) Cleanse the skin as in operating on sterile tissues. (2) Make an incision long enough to permit of the pus being freely evacuated and the pyogenic membrane rubbed clean and smooth with gauze wrapped round the finger. (3) Having emptied the abscess cavity as completely as possible, pack it tightly with gauze (the writer uses 1 in 1,000 mercury perchloride gauze, dry) and apply a wool dressing and

bandage as firmly as possible. (4) After 48 hours remove the packing and dress the wound as if it were a simple incision; that is, do not pack or drain at all, but simply fix a gauze and wool dressing firmly in place with a bandage. This dressing will require changing only once in 3 or 4 days until the incision is soundly healed, and it will be found that the sides of the abscess cavity unite promptly and that there is no outpouring of pus from it. From the time when the packing is removed practically a simple incised wound is being treated.

CASE 1.—After influenza, with throat symptoms, a woman developed an abscess in the neck. Under ether an incision was made in front of the sterno-mastoid, and on burrowing beneath that muscle 2 or 3 oz. of pus were evacuated. The cavity was rubbed clean with gauze and packed tightly. Two days later the packing was removed and a superficial dressing was applied. The temperature never rose after the operation; the patient almost at once felt well. There was never any discharge of pus and the incision healed quickly and perfectly.

CASE 2.—A woman had an abscess in the right breast. It was incised under ether, the pus let out, loculi broken down, all debris cleared out, and the cavity packed tightly. The temperature at once dropped from 103° to normal, and did not rise again. The packing was removed on the second day and a simple dressing applied. Next day the patient was attending to her household duties with her right arm in a sling. The wound was inspected 2 or 3 times until the incision was firmly healed.

CASE 3.—A woman had a perirectal abscess. Under ether the sphincter ani was stretched, and the abscess found to extend upwards some 2 in. or 3 in., burrowing between the rectum and vagina. It was opened by dividing the sphincter freely, cleaned and tightly packed. On removing the packing 48 hours later, it was found that the patient had had a motion and that the packing had come away. No more packing was used, but a daily sitz bath and a perineal pad of boric wool were ordered. On the ninth day, the cavity was found to be completely closed, and only a superficial ulcer, about 1½ in. by ¼ in., remained, which had healed in another week. The patient was in bed only 6 days after the operation.

CASE 4.—In cases of small abscesses, general anaesthesia is not required. A man had an ulcer inside the left cheek, produced by the sharp edge of a carious tooth. The skin of the cheek was red and indurated. The tooth was removed and the ulcer soon healed, but a small abscess developed and pointed externally. On Dec. 7, 1907, the skin was cleaned.

anæsthetised with a streak of pure carbolic acid, and incised. The pus was squeezed out and the cavity packed with gauze, which was fixed with strapping. The gauze was removed after 48 hours and not replaced, but a simple gauze dressing was applied, which was changed by the patient every morning after his toilet. There was no discharge, and the incision was soundly healed in a week.--*The Medical Review*.

OBSTETRICS AND GYNÆCOLOGY.

The Child Crying in its Mother's Womb.

The occurrence of the extraordinary phenomenon of the unborn child giving utterance to articulate and distinctly audible sounds has been met with incredulity by the general profession who have read of this occurrence, and it has been most tenaciously vouched for by the few who have heard it. The explanation of this strange manifestation we shall not discuss, but we may with propriety call attention to the fact that it has, on several occasions, been reported by medical men of accredited honesty and scientific acumen. We must accept these reports. They are of much scientific value. They must either be accepted by the obstetricians and physiologists as contributions to the knowledge of the phenomena of parturition and prenatal vocalization, or they must be accepted by the psychologists as contributions to the physics of the obstetric mind when intent upon the engrossing divertissement of beguiling the parturient babe beneath the pubic arch.

The most recent observation of this nature has occurred in the experience of Dr. RICHARD BLUMM, of Bayreuth and is reported by him, under the title "Intra-uteriner Kinderschrei," in the *Zentralblatt für Gynäkologie*, No. 9, 1907. Briefly the case is as follows: He was called on December 1, 1906, at 2-30 A.M., to a twenty-eight year old II-para for whom the midwife desired assistance on account of breech position and inertia. He found the patient walking about, and learned that the bag of waters had broken on November 30th, at 7 P.M. The woman was placed transversely in bed, and the vagina washed out. For the sake of accuracy we give the reporter's own version of what happened: "Beim Einführen der Hand gingen einige unbehagliche Darmwinde ab; als ich in die kindliche Leistenbeuge den Finger einhakte, zuckte das Kind stark zusammen, und sämtliche Anwesende; Kindsvater, Kreissende, Hebamme und ich, hörte in Innern des mütterlichen Leibes einen deutlichen Kinderschrei; dieser Schrei wiederholte sich während des Herabziehens des Beines noch ca. 5-6 mal und wurde von allen Anwesenden deutlich als Schreien eines Kindes gehört." In other words, as the

accoucheur passed his finger up and hooked it into the child's groin, the head still being in the uterus, the child strongly drew itself together, and every one present (doctor, father, patient and midwife) heard from within the abdomen of the woman distinctly the cry of a child. This cry was repeated five or six times while the legs were being drawn down and were plainly recognized by all as the cries of the child. The delivery was expeditiously completed. Notwithstanding the strong pressure which the head had made upon the cord the child was not asphyctic; it gasped immediately for breath, and without any help began to cry (und fing ohne alle Beihilfe zu schreien an).

Dr. BLUMM reports this case because the possibility of intra-uterine crying has been questioned and confused with the deceptive sounds made by the entrance of air, etc. He explains this case by the belief that the child received air in the uterus to breathe, because after complete discharge of the amniotic water the rather high breech did not completely stop up the cervical canal, but permitted air to pass up into the relaxed uterus and the child inhaling this air gave expression with it to the prenatal cries above described.--*New York State Journal of Medicine*.

Menstruation without Ovaries.

BY

DR. G. GELLHORN (*Zent f. Gyn.*, October 5, 1907).

CASE I.—A woman, 38 years old, had had both her ovaries removed as a result of two laparatomies done in the space of one year. For the following 17 months she experienced a regular, four-weekly uterine bleeding. At first the bloody show lasted only a few minutes or hours; gradually the flow assumed the usual type, lasted three days, and was associated with the usual menstrual disturbances. There seemed to be no doubt that the ovaries were removed completely and that no third ovary was present. For a third time laparotomy was done for persisting pelvic symptoms. The abdomen and pelvis showed numerous adhesions of the omentum to the abdominal wall and other structures, especially an adhesion to the sigmoid and to the fundus uteri. The uterus was small atrophied. No sign of tubes or ovaries was discoverable. The buried appendix was exposed and removed. The peritoneum was loosened anteriorly from the sheath of the rectus as far as possible and sutured. As a result of the operation the menses ceased down to the time of the report—six months later; but some of the adhesions re-formed. The author believes that the three peritoneal adhesions between the omentum and the uterus provided the source of blood for the pseudo-menses.

CASE II.—The left adnexa had been removed per vaginam six years previously for a cystic tumor of the left ovary. A second laparotomy failed to discover the left adnexa and the right adnexa were removed. Symptoms of the menopause were so violent that ovarian extract was administered. Two menstrual shows made their appearance and disappeared on suspending the ovarian extract. This observation was repeated several times.—*The Post-Graduate*.

Delay in the Establishment of the Secretion of Milk.

M. LELIEU (*Jour. de Med. et Chirurg. Prat.*, Mar. 10, p. 177.)—The writer reports 7 cases in which, for various reasons, mothers attempted to rear their infants artificially, but on this failing to agree with the child, suckling was re-commenced some time after the secretion of milk had apparently ceased. Four of the patients were primi-para and the age of the infants when first put to the breast were 13, 20, 24, 30, 34, and 58 days respectively. In all these cases, after a period of from 8 to 18 days a secretion of milk sufficient for the needs of the infant was obtained. The principal means employed was repeated and methodical suckling by the infant or when it was too weak by a more vigorous child. The infant received 8 feeds of sterilised milk daily but before each of them was put to both breasts and allowed to suck for some time. Various accessory measures had been employed of which those which seemed most beneficial were the administration of preparations of placenta and massage of the breasts, but suction proved most important. When nursing was interrupted, as by serious illness of the mother, the same method has been successful. QUINSAC has reported numerous cases in which methodic suckling re-established the secretion of milk in about 15 days after periods as long as 5 months and also after severe illness.—*The Medical Review*.

THERAPEUTICS.

Euquinine in Malaria.

AN interesting article on "Experiments towards the Prevention of Malaria in the Federated Malay States," by MALCOLM WATSON, M. D. Glasgow, etc., appeared in the *British Medical Journal* of Feb. 29th, 1908, in which high praise is given to Euquinine.

The author says that the high infant and child mortality has been entirely stopped by the employment of Euquinine, which he administers in doses of 5 grs. per diem (in a little sweetened condensed milk). Instead of the splutter and struggle experienced with the ordinary quinine

salts he finds the children, almost without any exception, appearing punctually, each with a tin, at the time of the daily dose. He regrets that the price of Euquinine is not lower, as its employment could be enormously extended; on the plantations it appears to be used in children only. He adds that twelve out of twenty-six children died from July to December, 1906, whilst there has not been a single death during the six months of 1907.

DR. MALCOLM WATSON is an advocate of quinine for malaria prophylaxis. The object of his experiments is not to prove or disprove the mosquito theory: what he desires to determine is the style of building best suited for a community of ignorant Tamil coolies, and the comparative value of a systematic use of quinine. Before the coolies can clear and drain a sufficient area to protect themselves from mosquito infection, they are liable to be exterminated by malaria. He has for some years observed the effects of a quinine prophylaxis on coolies engaged in opening up estates, and finds abundant proof for the value of the systematic use of this drug. The great drawback is that it will only be taken by those under direct control of some one interested in their welfare. Some 2,000 coolies received during 1907 from 8 to 10 grs. daily when well, and about 20 grs. when not working, in a portion of the Kiang district, with highly successful results.

DR. MALCOLM WATSON is of opinion that, in conjunction with therapeutic treatment, sanitary measures should be carried out in a manner likely to give rise to the least resistance, *i.e.*, individuals ought not be made to undergo more than is absolutely imperative in order not to make all efforts futile. In his mode of procedure this has been the guiding principle.—*The Therapist*.

Advantages of Iodipin over Potassium Iodide.

Notwithstanding attempts to obviate the depressing effects of potassium iodide, there will still be patients who absolutely cannot take potassium iodide in the needful quantities at all. It becomes necessary to find some other iodine preparation that they can take. As an example of an iodide which produces all the good without many of the bad effects of potassium iodide, we have iodipin. Many medical men of standing have tried it, and have reported well of its effects. It will probably not be tried until potassium iodide has been found impossible of use in any particular case, but, failing potassium iodide, it is good to know that iodipin can take its place.

The preparation is a combination of iodine with sesame oil, discovered by WINTERNITZ; it can be prescribed in various strengths, the two most usual being a 10 per cent. solution and a 25 per cent. solution. Upon the continent it is largely administered by subcutaneous or intramuscular injection; if it could be used only by this method it would commend itself to few, but, among others, DR. STOPFORD TAYLOR and DR. MACKENNA, of the Liverpool Skin Hospital, have watched the results of giving it by the mouth, and they find them excellent. Some very severe cases of tertiary syphilis were thus treated by them, with rapid improvement in the condition. They prescribed 30 min. of 25 per cent. iodipin in milk, three times a day, about two hours after food. In twelve days, after taking 1-2 oz. of iodipin altogether, the lesions, previously very severe, were upon the high road to being healed.

They find that whereas potassium iodide is very rapidly eliminated from the body, particularly in the urine, iodipin is thus lost much more slowly; even two months after the last dose iodine has still been found in the urine. This slow elimination is possibly one of the chief causes of its efficacy; in any case, no symptoms of iodism and no depression is observed, and the patients gain, rather than lose flesh.—*The Hospital*, July 6, 1907.

Santonin in Dysentery.

DR. DRAKE reports sixty-five cases of dysentery treated with santonin in two tea estates in Siam. Each alternate patient was treated with 5 grains of yellow santonin in 2 drams of olive oil three times a day on alternate days, the patients not so treated being given bismuth, salines, ipecacuanha or astringents, or a combination thereof, according to ordinarily recommended methods. On one estate 6.58 days was the average time taken to effect a cure by santonin, and the deaths numbered three, while the treatment by other remedies averaged 13.1 days, with thirteen deaths. Twenty-five patients were submitted to each form of treatment. The average number of days in the second case was 9, with no death under santonin, while under other drugs it was 30, with two deaths.—*Journal of Tropical Medicine and Hygiene*.

OPHTHALMOLOGY.

Some Common Diseases of the Eye.

Their Diagnosis and Treatment.

BY

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(A post-graduate Lecture Delivered at the West London Post-graduate College.)

GENTLEMEN,—I want you to imagine that this is my out-patient room, and that you have come to see and examine with me some of the cases which present themselves for treatment. In order to facilitate this imaginary proceeding I have brought—and will pass round—a few coloured drawings showing some of the common diseases of the eye taken from HAAB'S Atlas, which will very readily serve as the counterfeit presentations of the patients whom we may imagine to be present.

SIMPLE CONJUNCTIVITIS.

Let us suppose that the first case which comes for treatment is that of a young woman. There is some redness of the eyelids of both eyes; the lashes are adherent with dried mucus; at the inner canthus some white mucous secretion is plainly visible. On raising the lids there is to be seen marked infection of the conjunctiva. The patient then states that the lids are always "gummed together" in the morning; that she feels "as if there were sand in the eyes." The diagnosis is thus made plain, both by the appearances presented as well as by the statement of the patient; but for our purpose let us examine the case a little further. And here let it be borne in mind that the most prominent condition present—namely, injection of the globe—is merely a symptom, not a disease, and that it is coincident with many other diseases, such as iritis and ulcers of the cornea. To make, therefore, a mistake in the differential diagnosis would be attended with most untoward consequences to the patient.

In all cases of doubt close inquiry should be made into the cause of the injection, and with this object in view the eyes should be examined by the oblique or focal illumination, and especially so when only one eye happens to be the seat of inflammation. As showing the importance of this, quite recently I have seen in private two cases in which an inflamed eye was being wrongly treated for conjunctivitis: in one case I found a small foreign body upon the cornea and in the other a foreign body beneath the upper lid. In simple conjunctival inflammation the injected

vessels are seen to be superficial; they can be moved freely over the sclerotic, and slight pressure with the finger empties them of their blood; the redness is of a dull brick colour, and is more marked towards the periphery of the eyeball. Whereas, should the injection be mainly ciliary in origin, such as occurs in iritis and corneal ulcers, the redness is bright pink in colour, is mainly centered around the cornea, and the distension of the vessels is not effected either by movement or pressure of the finger. In the case before us, then, we have to deal with one of simple conjunctivitis.

BACTERIOLOGY AND TREATMENT.

Bacteriology has shown that simple conjunctivitis is a disease in which no fewer than five special varieties of micro-organisms may be concerned. The most common variety is that known as the Koch-Weeks bacillus, but the disease may also be caused by the streptococcus, the staphylococcus, the pneumococcus of FRAENKEL, and the Morax-Axenfeld diplobacillus. Despite, however, the complexity of origin, there is no difference in the clinical type of the disease.

Given, then, a disease of such pronounced bacillary origin as simple conjunctivitis, possibly it may be thought that the treatment would undoubtedly demand the use of some powerful germicide in order to destroy the infection. But bear in mind that the conjunctival sac is not in any sense a region which can indiscriminately be dealt with by powerful germicides, however much there may be indicated in the treatment of its particular diseases. To this matter I shall again refer later on, when discussing the question of the treatment of purulent conjunctivitis. Seeing, then, that the cause of simple conjunctival inflammation is incapable of being directly dealt with, germicides as such are not indicated in the treatment. On the other hand, astringents are invaluable. The effect of astringents is, doubtless, to cause contraction of the blood-vessels, and thus to change the conditions present in the conjunctival sac, and to destroy for the time being its capacity for serving as a culture medium for micro-organisms. In the imaginary case, then, of the woman before us, the treatment indicated is a lotion of one grain of sulphate of zinc to the ounce of water, to be used twice daily, together with a simple ointment to be applied to the lids at bed-time to prevent them from adhering.

MEIBOMIAN CYSTS.

The next case that we will imagine is that of a young girl of twenty. As she comes forward for examination she points to the upper lid of the right eye, upon which is plainly to be seen a small swelling, which she

asserts has been present for a month and is growing larger. In this coloured drawing is aptly delineated the condition which the lid presents. The swelling is known as a meibomian cyst. It is not inflamed nor painful, and the only serious feature about it is its unsightliness. These cyst-like formations may occur at any age. Commonly they are met with in young girls who are anæmic and constipated. Sometimes, their early development is associated with slight inflammatory signs, which, however, soon pass off. This simple affection is due to a chronic inflammation of the meibomian glands, in the course of which granulation tissue is formed, enclosed by a capsule of connective tissue. Later on, the central portion of the granulation tissue undergoes mucoid degeneration, leaving the cavity thereof occupied by contents of a semi-liquid consistence. On the inner side of the everted lid, the conjunctiva, as displayed by this drawing, becomes injected, thickened, uneven, and somewhat bulging. It is owing to the unevenness and thickening of the conjunctiva that these meibomian formations sometimes give rise to signs of slight general conjunctival irritation, and the discomfort thus caused leads the patient at last to seek advice.

THEIR TREATMENT.

The treatment of these cases is simple and effectual. A four per cent. solution of cocaine should be instilled into the conjunctival sac. Then the upper lid is everted and a Beer's knife made to transfix the swelling in a horizontal direction. In books the incision is generally directed to be made vertically; but for obvious reasons the horizontal direction is the best—a detail worthy of note. While mentioning the word *detail* let me remind you that this small procedure comes under the category of an operation: it is so regarded by the patient because a knife is used. Trivial though the procedure may be, nevertheless, as a matter of principle, the routine as to antiseptic precautions should be strictly followed. Therefore, after the instillation of cocaine, the lids and conjunctival sac should be thoroughly douched with a warm 1-4000 solution of chinol: the swabs should consist of chinol gauze, soaked in a solution of the same strength, and the instruments should be sterilised by immersing them for some moments in absolute phenol, and afterwards placed in a 1-20 solution of carbolic acid. The incision having been made, Davel's scoop is taken, thrust into the wound, and turned round several times so as to evacuate the contents and lacerate the enclosing capsule. Lastly, the wound is cleansed with the swabs and the conjunctival sac douched with the chinol solution. The lid is replaced in position; no dressing is required. At first the swelling appears to be as large as

before: that is due to the distension of the small cavity with blood, which, however, soon becomes absorbed. In order to facilitate this process it is well to direct the patient to begin massage of the lid with ung. hydrarg. dil. about forty-eight hours afterwards—that is to say, when the small wound has ceased to become tender to pressure.

PURULENT CONJUNCTIVITIS IN INFANTS.

The next case we may imagine is that of a baby brought by its mother. The disease from which it is suffering is, perhaps, the most important of all those which may come under notice during an ordinary afternoon in the out-patient room. Look at this coloured drawing. Note the redness and the swelling of the eyelids; the exudate of thick, creamy-looking, yellowish pus flowing from between the lids over the cheek. Truly may this disease be described as important, for owing either to neglect or mismanagement, or both, 30 per cent. of the blindness in the blind asylums in the world is due to the sequels of its incidence. The case is one of purulent conjunctivitis, the origin of which, as you all know, depends upon a highly infective micro-organism—namely the gonococcus of NEISSER. The destructive effects of the disease are illustrated in the rapidity with which the cornea becomes involved. The peril to which the cornea in these cases is exposed is due to the mechanical arrest of its nutrition from the intensity of the conjunctival inflammation, not to the invasion of the corneal tissue by the gonococci. Even a few hours in the delay of treatment may be fraught with the most perilous consequences to vision. And yet let it be remembered that, serious in its results and fatal to the eye as this disease may be, its treatment presents no real difficulty. Whether the result of the attack will be good or bad depends upon the condition of the cornea at the time that the child first comes under skilled treatment. If the cornea be intact, clear, and natural, it may be safely affirmed, without exception, that the case is one which will do well—one in which the peril of blindness will be averted. Unfortunately, however, all of us can recall deplorable cases in which, through the loss of valuable time, the disease has been permitted to exert its fullest destructive effects.

METHODS OF EXAMINATION.

Let us now consider the various details required to be observed in the examination and treatment of these cases. First as to the examination. In acute cases with much swelling of the lids, the child should always be examined under chloroform when seen for the first time. This for two reasons: partly to abolish the resistance of the child, partly

to avoid the use of force in exposing the cornea. The risk associated with the application of force under these circumstances is that of rendering complete a threatened perforation, followed by prolapse of the iris, and even extrusion of the lens. As soon as the child is under the anæsthetic, a swab should be taken and the eyelids thoroughly cleansed with a 1 in 2,000 solution of chinocol. Then the lids may be raised and the cornea examined. Sometimes, in order to do this effectually, a retractor is necessary; but always avoid using an instrument in these cases, if possible. If a retractor is used, be careful that it never touches the cornea.

TREATMENT IN INFANTS.

The examination having been concluded and the cornea found to be clear, what is the treatment? The remedies required are three in number: (1) Drops of nitrate of silver, one grain to the ounce of water; (2) A lotion of sulphate of zinc, one grain to the ounce of water; (3) A simple ointment, such as the ung. cetacei. The drops are in bad cases instilled into the conjunctival sac every hour, or, as the infant's mother is informed, every time that the clock strikes. The sound of the clock reminds the parent of the duty which she owes to her offspring, with the alternative of blindness resulting as the consequence of her neglect. Every ten minutes the lotion should be used to wash the discharge away from its lids, or as often as it is seen to collect, and the ointment must be smeared round the lids, to keep them from adhering, as well as to protect the tender skin of the lids and face from being excoriated by the remedies employed.

In the course of forty-eight hours, provided that the instructions given above are fully carried out, a great improvement will be noticed in the condition of the infant's eyes. First the swelling of the lids will be less; the discharge much diminished in quantity as well as changed in character. It will be thinner, less purulent, less virulently infective. The frequency of the instillation of the nitrate of silver drops may then be reduced—that is to say the drops may be used every two or three hours during the day only. Later, when the discharge reaches the muco-purulent stage the drops may be used three times daily; and as soon as the purulent character of the discharge ceases, which is generally in the course of ten days, they may be discontinued. Nevertheless, the daily use of the zinc lotion is indicated for some days longer.

PURULENT CONJUNCTIVITIS IN ADULTS.

Time does not permit me to discuss the special treatment of those cases in which the cornea has become ulcerated as the result of purulent

conjunctivitis in the infant, more especially as I desire to direct your attention to one or two points in the treatment of purulent conjunctivitis as met with in the adult—a disease which is provocative of much anxiety to the surgeon. There is first the question of the age of the patient. It has been alleged that among all the cases of purulent conjunctivitis treated at the Royal London Ophthalmic Hospital in patients over forty years of age no eye was saved. Doubtless in some degree the explanation of this depends upon the fact that the cornea is less well nourished in the adult as compared with the child. But we must also bear in mind that the conditions favourable for the full development of the disease in the former are much greater than in the latter.

Thus can be explained the difficulty which always environs the treatment of purulent conjunctivitis in the adult. In the conjunctival sac of the adult there is a sub-epithelial layer of adenoid tissue, for which the gonococci exhibit a special predilection. In this tissue, for the most part they locate themselves, and there they are more or less protected from the germicidal effects of remedies.

MANAGEMENT OF ADULT PATIENTS.

There are many points of practical interest and importance in the management of this dread disease in the adult. Time, however, does not permit me to deal with the subject at any length. Nevertheless, I may allude to a few points which I regard as of much importance. In the first place, bear in mind that while in the child the danger to the cornea arises from delay and neglect in applying the proper treatment, in the adult the cornea is imperilled by, on the one hand, the extreme chemosis, arresting its nutrition, and, on the other, the impossibility of controlling the progress of the disease.

The primary point of treatment, therefore, in the adult is to remove as far as possible all mechanical pressure upon the cornea, such as ensues from the swelling of the lids and the chemosis. This may be effected by dividing freely the outer canthus with scissors, and by radial snips with the scissors in the œdematous conjunctiva. There is generally free hæmorrhage after these procedures, and it should be encouraged, since it assists in reducing the blood-pressure in the eye and orbit. Furthermore, every hour some drops of a one grain per fluid ounce solution of nitrate of silver must be instilled into the conjunctival sac, together with some one-in-1000 solution of chloride of adrenalin. Twice daily, also, eserine drops should be used, of the strength of half a grain to the ounce of water; and, lastly, the chinosol fomentations should

be applied to the affected eye every two hours. The usual advice given is to apply ice compresses in cases of purulent conjunctivitis in the adult. This treatment, however, I deem to be harmful. Cold applications are not indicated in any form of ocular disease, and they should be especially excluded from every variety of disease in which the cornea is involved. A full diet is always necessary in these cases, even to the extent of some alcoholic stimulant; also quinine and iron or iron and strychnine are helpful, to counteract the depressed nutrition, which is often present.

THREE ILLUSTRATIVE CASES IN ADULTS.

Some of you, doubtless, have seen the young nurse who for the past few weeks has been attending my out-patient room. She was sent to me by the medical superintendent of one of the neighbouring Poor-Law Infirmarys. At the time of her first visit there did not seem to be the least prospect of saving the eye: partly owing to the sloughing of the upper part of the cornea; partly to the chemosis, which had practically reached the stage of solid œdema. The treatment which I have just delineated was faithfully carried out by the Sister in charge of the case, under the supervision of the medical superintendent, and for a time there was some improvement. Nevertheless, the chemosis never became visibly less, despite scarification and division of the outer canthus, together with the other adjuncts of local treatment.

Then at times much complaint of acute onsets of pain were made, until at length it seemed that relief could only be obtained by enucleation. Quite suddenly, however, the chemosis began to subside, the conjunctival injection to diminish, and the ulceration of the cornea—which had proceeded to perforation—ceased and showed some evidences of repair. There is now a dense, flattened leucoma of the upper part of the cornea, and some haziness in the pupillary area. Nevertheless, the eye has been saved, with the retention of some vision. The eye became infected while the nurse was attending to an infant suffering from purulent conjunctivitis.

A few years ago I admitted into the hospital a middle-aged midwife whose right eye had become similarly infected. This was a remarkable case, inasmuch as, although the eye did well, despite some ulceration of the cornea, the woman ultimately died of pyæmic symptoms, after having had her left knee-joint opened, in which there was pus. As is well known, arthritic inflammation is occasionally met with in infants in whom purulent conjunctivitis is present.

Another interesting case was that of a young man whom I admitted for a mild attack of the disease. Within forty-eight hours he

suddenly began to vomit; his temperature rose to 105° F., and it was very doubtful to what his symptoms could be attributed. In due course, however, he was found to be suffering from an acute attack of variola, which necessitated his immediate removal from the hospital. I scarcely expected to see the patient again—still less his affected eye. But one day he returned to show himself, and I had the satisfaction of learning that his eye had made a good recovery, despite the variolous attack.—*The Hospital.*

The Modern Treatment of Ophthalmia Neonatorum.

ROSA FORD, M.B. (*The Hospital*, Feb. 29. p. 273).—The following treatment gives very satisfactory results:—

PROPHYLAXIS.—(1) Wipe the eyelids clean with a damp swab immediately after birth. (2) Drop protargol 10 per cent. into each conjunctival sac. A damp swab for cleansing the eyelids is preferable to a dry one, because this sticks to the greasy skin surface. Wet swabs are also inadvisable, since the cleansing solution, now charged with infected matter, will probably leak into the conjunctival sac. This method is preferable to CREDE's or to the use of perchloride of mercury, which cause irritation.

TREATMENT.—(1) Cleanse the conjunctival sac every half-hour with a warm solution of borax (3ij. ad. Oj.) (2) Foment the eyes with squares of gauze wrung out of this solution. Change every half-hour. Do not cover the gauze with anything else. (3) Drop protargol 10 per cent. into the conjunctival sac every hour. (4) Once a day instil protargol 20 per cent., keeping the solution in the conjunctival sac for 2 minutes.

If the cornea becomes hazy.—Instil atropine (gr. ij. ad. ʒj) thrice daily, and continue all the other measures.

In hyper-acute cases and in relapses.—Treat as above until the tense swelling is reduced and the secretion free, then make a single alteration: instead of instilling the 20 per cent. protargol, paint the whole of the palpebral conjunctiva with 2 per cent. silver-nitrate solution once a day. After a minute wash off any excess of fluid with sterilised salt solution.

The borax solution is bland, alkaline and antiseptic. Perchloride of mercury is a stronger antiseptic, but it is irritant, and its frequent use tends to increase inflammation. Warm fomentations are preferable to ice compresses, because they encourage a free circulation, thus enabling the leucocytes to better fight against the microbes. Ice compresses also depress the vitality of the tissues, and so favour keratitis and

ulceration of the cornea. Gauze exerts only a light pressure on the eyelids, and is kept moist by constant changing; this moisture prevents the secretion from becoming dry, sealing the lids together, and damming back the pus. Vaseline or ointment is therefore unnecessary, and it is an advantage to be able to dispense with both, since their use makes the lids slippery and examination or treatment difficult.

Some writers recommend argyrol, but the evidence is in favour of protargol. Silver nitrate is a dangerous drug. DARIER says: "Complications are generally caused by unduly strong solutions of silver nitrate." Also silver nitrate is painful; protargol is comparatively painless. Silver nitrate should be used by the physician only; protargol may be used by the nurse or attendant. Silver nitrate must not be used in the early stage; protargol may be used throughout. Silver nitrate can only be used once a day; protargol may be instilled with great frequency. In very acute cases, however, silver nitrate is the better drug. BAILLART says that the gravest cases are never so rapidly improved by protargol as by silver nitrate. DARIER also recommends its use in relapses, which are often difficult to treat. In ante-partum ophthalmia (see "REVIEW," 1906, pp. 321, 532) when the child is born with the eyes already inflamed, do not apply CREDE's treatment. It will only increase the inflammation. If CREDE's method has been neglected at birth, do not apply it on the first sign of inflammation. It is then too late. Never use silver-nitrate solution stronger than 2 per cent.

Examine the cornea at least twice daily. There are only two ways of doing this. The hands should be securely held by one assistant, the head fixed by another, or between the operator's knees. Then the tips of the thumbs should be placed opposite one another on the extreme borders of the child's lids, and while exerting a gentle but firm pressure on the eyeball, and also holding the two thumbs constantly parallel to each other, the lids should be separated as far as possible. Maintain this position steadily until the child moves the eye, as it is sure to do sooner or later, so that the cornea comes for a brief moment into full view. The other method is by metal retractors which should only be used as a last resort.

Protargol must be prepared with cold water. The best method is to dust the powder on to as large a surface as possible of the required amount of distilled water, and leave without stirring. It will dissolve in about half an hour. The solution does not keep well unless preserved in an amber-coloured bottle in a cool, dark place. A convenient form for the practitioner who does not often use it, is the soloid of 1 gr. or 4 gr. Protargol must not be used for too long as it stains the conjunctiva.

If the inflammation is limited to one eye, it is probably a result of congenital duct obstruction. The case should be referred to an ophthalmic surgeon. Recognised early, these cases can be cured rapidly and easily, but if allowed to persist for some months, treatment is often difficult and tedious.

With regard to prognosis, Dr SCHWEINRTZ'S opinion is valuable. He states that if an eye is seen while the cornea is still clear except in diphtheritic or inherently malignant types, or in cases of malnutrition, a complete cure should be looked for. It has been estimated that 66 per cent. of the cases of ophthalmia neonatorum recover with unimpaired sight.—*The Medical Review*.

The Treatment of Trachoma.

By some trachoma is considered incurable. This may be true of that stage where obstinate sequelæ are well marked, but of the earlier stages it is inaccurate. The cure of trachoma requires the earliest possible treatment of the disease; that is, by removal of the trachomatous infiltration before scarring and pannus have arisen. At the same time good hygienic surroundings and general measures are of great importance. Treatment may extend over several years before a cure is accomplished: much depends upon the regularity and intelligence with which it is carried out. For the most part the sufferers belong to the lower classes and have neither patience, time, nor means for sufficiently long treatment. They undergo treatment for a short time, the condition improves, and then they leave off; relapse occurs, they submit to treatment for a time, but they never become really cured.

The treatment must be adapted to the stage and special form of the disease. The rapid cure of any discharge must be attempted for prophylactic reasons. Whatever method is adopted, the whole of the diseased area must be attacked. The "mild" cases, in which there are no inflammatory symptoms, no follicles in the tarsal conjunctivæ, only a few in the retrotarsal folds, and no secretion, respond most readily to treatment. In this early stage, when the follicles are hard and unripe they cannot well be expressed without considerable injury to the conjunctivæ. Destruction of the conjunctiva is to be avoided and resorption of the trachoma bodies is to be aimed at. This is best obtained by an application of the copper stick, a smooth cone of copper sulphate fixed in a handle. It is to be used once a day (a drop of cocaine, 2 per cent. may first be instilled), and a mild lotion of boracic acid can be used if necessary. It is to be used with care; indiscriminate use for too long a period is to be avoided

since too strong a reaction ensues and retards a cure. The application should be made lightly and equally over the conjunctiva, taking care to go well into the fornices and to avoid touching the cornea. The use of the copper stick is continued, unless the reaction is too strong, until the follicles disappear. If the reaction is greater than is desired, the copper may be replaced by the alum stick. When all follicles have disappeared treatment should be stopped for a time, and resumed at once if there is any recurrence.

The use of X-rays in some of these early cases is very beneficial. The patient is seated, with the face about 9 inches from the tube. The lids may be everted or the application may be made through the lids. The latter method is more comfortable to the patient, and the effect is equal to that obtained by the exposed method. The sitting is of 5 minutes' duration, and is continued daily for a week, unless there is a marked reaction before then. The following week no treatment is given, except perhaps boracic acid lotion. Several cases have been cured in this way, in others again the best results were got by combining the X-ray and copper stick methods, a better response being obtained to the copper after the X-rays. Occasionally the X-rays produce an exacerbation of the disease, but on the whole they are of no little value. The same cannot be said of the use of radium and high frequency current.

In cases where the follicles are more marked and ripe, expression should always be done at the outset. The procedure is simple and can be done under cocaine, applied superficially or by submucous injection. GRADY'S expression forceps is perhaps the most useful. In expression the epithelium over the follicle is ruptured and the contents expelled. When this method is employed correctly the removal of the follicles and diffuse infiltration is not followed by excessive scarring. After expression the conjunctiva is painted with a 1 per cent. solution of hydrarg-perchlor. in glycerin. This is followed by considerable reaction for a few days, and produces a discharge, which is to be treated with boracic acid lotion. Afterwards copper and alum are to be used as described above. Expression can be usefully repeated, as the follicles gain mastery over the copper; they are to be looked for in the retrotarsal folds, especially at the inner and outer angles.

Mechanical friction, such as massage of the conjunctiva with dry boracic acid powder, is not of much value; nor is scarification to be recommended, on account of the injury inflicted on the conjunctiva.

Expression gives no guarantee against re-infection, and after-treatment with medicaments is necessary, as after other methods. The

predilection of trachoma for the fornices was early noted, and it is there that exacerbations and recurrences take their origin and proliferation of the conjunctiva is observed. When this is marked, excision of the fornices has proved of considerable value; care must be taken not to remove any of the bulbar conjunctiva. Other sequelae, as trichiasis, entropion, blepharophimosis, blepharitis, or implications of the lachrymal passages require appropriate treatment by operation or otherwise.

More severe cases, where inflammatory symptoms are present, such as marked swelling and injection of the conjunctiva, with more or less profuse purulent or muco-purulent discharge, are first to be treated as a muco-purulent conjunctivitis. Antiseptic lotions (hydrarg-perchlor. less 1 in 6,000) frequently, 2 per cent. silver nitrate once a day, and a simple ointment to prevent the lids sticking together, are to be used. When these acute symptoms have subsided, the combined copper and expression treatment is begun. In advanced gelatinous trachoma, and in cases where there is scarring with healed conjunctiva, but a thickened and much infiltrated tarsus, KUUNT'S method of excising the tarsus is very valuable.

When the limbus is much swollen, and the edge of the cornea vascularised and infiltrated, corneal complications may ensue. Irritating treatment should then be stopped, and atropine used to lessen the tendency to iritis. In obstinate pannus, peritomy, with scissors or galvanocautery, is useful, or the acute inflammatory reaction produced by the instillation of jequiritol into the conjunctival sac.—*The Hospital*.

PAEDIATRICS.

Epidemic Infantile Paralysis

STARR gives an account of the epidemic of infantile paralysis in New York City and vicinity in the summer of 1907. It began about May, the number of cases steadily increasing until it reached its height in August and September. Cases continued to appear in October and some were reported as late as December. The summer was warm and unusually dry; other infectious diseases were not particularly prevalent. It is estimated that 2,000 cases occurred in this epidemic with a mortality of probably from 6 to 7 per cent. Attacks of diarrhoea preceded the attacks in many cases, but it was impossible to trace any connection with the water or milk supply in this epidemic. The symptomatic picture was in some cases that of poliomyelitis of the ordinary type; in other cases, of poliomyelitis with bulbar paralysis; in others, of poliomyelitis with polioencephalitis of WERNICKE. In a few cases there was true infantile

hemiplegia, and this seems to have been more common last summer than usual, suggesting that the infectious agent attacked the cortical motor nuclei. Pain was a symptom particularly prominent in this epidemic. In many cases in which the arms were involved the respiratory muscles were also affected and when death occurred it was more from respiratory paralysis or heart failure than from any febrile affection. The acute onset usually subsided in a week or ten days and improvement was noticed beginning at the end of the second to the fourth week. In the great majority this has continued, and as a rule is likely to go on for two years. In many cases, in which the paralysis was not very intense, but still marked, there was a complete recovery, and the frequency of such abortive cases was rather unusual. On the other hand very rapidly fatal cases occurred, the mortality reaching the unusual figure of about 7 per cent. The paper includes a biologic study of the cerebrospinal fluid in twenty cases which seems to indicate that the diagnosis of poliomyelitis by means of a serum reaction is not possible and throws no light on the etiology of the disease. The pathologic findings are discussed; the results of the later work in this direction have merely confirmed the statements of previous observers. As regards the bacterial origin of the disorder, authorities differ. STARR concludes from the facts, so far as known, that while the clinical history of the disorder implies an infection, it must be admitted that up to the present time the organism responsible for the disease has not yet been discovered, and that it is still a matter of uncertainty whether the causative agent is a micrococcus or a toxin. The weight of evidence, however, is in favour of the latter. STARR has collected accounts of thirty-seven epidemics of poliomyelitis of which he gives brief summaries. Some interesting points regarding prognosis are noted. The mortality of sporadic cases is very low, but in the epidemics it reaches the rather alarming figure of from 6 to 10 per cent. On the other hand they have shown that in 25 per cent. of cases there is complete recovery, compared to the very general persistent paralysis in sporadic cases, and while in many cases some permanent paralysis remains, a marked improvement almost always occurs. Thus a certain hopefulness is warranted in all non-fatal cases. For treatment, he advises dry cupping of the back to relieve the congestion in the early stages, or ice bags may have a like effect, and cool sponging may help to keep down the fever. Sedatives are usually required for pain; the child should be kept very quiet, a brisk purgative should be given, and the food during the first two or three days should be chiefly milk. CUSHING has shown that the administration of hexmethylenamin results in the presence of formaldehyd in the cerebro-spinal fluid, a fact which STARR has

been able to confirm, and he suggests, therefore, the use of small doses of this drug during the onset of the disease or until fever subsides. Salicylate of soda has been used and good results reported. STARR prefers salicylate of strontium as less likely to irritate the stomach. After the onset is over and pain has subsided, it is best to suspend treatment for two weeks, and begin the use of strychnia, which should be pushed as far as consistent with safety. Massage, manipulations and electricity are also useful. It is especially important to ward off deformities by the proper use of orthopedic measures and it is never wise to delay them till deformity has been produced. The orthopedic treatment of these cases is more important than any other.—*The Montreal Medical Journal*.

A Case of Œdema Persisting Since Birth.*

BY

G. A. SUTHERLAND, M. D., F.R.C.P.,

Physician to the Paddington Green Children's Hospital, etc.

L. J—, female, aged 7 months, has been the subject of œdema of the feet since birth. The condition varies only in the degree of the œdema, not in the character. Under ordinary circumstances there is seen to be on each foot marked swelling of the dorsum, the sole, and the toes. The œdema ends abruptly at the ankle, which is freely movable. The dorsal swelling is rather pale and pits on pressure. The sole is tense and swollen, shows no pitting, and is of a pinkish-red colour. This colour disappears entirely on pressure. The toes are also pinkish-red, and are tense, and the nails are partially covered by the swelling around them. When the feet are cold they rapidly become blue or blue-black in colour. When the child is ill in any way the swelling of the feet becomes more pronounced.

The mother died of phthisis soon after the infant was born. A full family history cannot be obtained. The infant has suffered from gastrointestinal disturbance accompanied by lichen urticatus. The striking feature about the latter was the appearance on the head, at the age of three months, of large urticarial wheals. These were as large as hazelnuts, very tense and white. Typical eruptions of lichen urticatus have appeared about the body and extremities at intervals.

On physical examination no cause for the œdema can be detected. The heart appears to be normal. The urine has been examined on three occasions. On two occasions there was present uric acid but no other abnormality. On the third occasion pus cells and a trace of albumin were

* Exhibited at the Society for the Study of Diseases in Children, November the 15th, 1907.

detected, the latter being sufficiently accounted for by the former. The hands tend to get blue if at all cold. The eyes are at times noticed to be slightly puffy about the lids, the upper lids being as markedly affected as the lower. The foster-mother states that when the rash improves the feet are more swollen, and when the swelling of the feet diminishes the rash again comes back. The rash referred to is the *lichen urticatus*.

The nature of this form of œdema is obscure, but probably one may exclude cardiac or renal disease as the source. The blood has not been examined, but there is no definite anæmia. The œdema does not pass off under prolonged rest in the horizontal position. Possibly the association with lichen urticatus lends strength to the suggestion that the œdema is due to a general vaso-motor disturbance, intermittent in its action generally, but constant as regards the circulation in the feet. The outbreaks of lichen urticatus, the blueness of the hands, and the occasional puffiness of the lids show a tendency to disturbance of the peripheral vaso-motor system.—*The British Journal of Children's Diseases*.

TOXICOLOGY.

Fatal Phenacetin Poisoning.

K. E. RUSSOW (*St. Petersburg Med. Woch.*, Feb. 8, p. 33).—According to LEWIN, the smallest fatal dose of phenacetin is 1 gm. The writer has found 2 recorded cases of fatal poisoning by 1 gm. Such cases are rare.

A previously healthy woman, aged 50, was seized with pains in the calves and pectoral muscles after a thunder storm. The writer diagnosed muscular rheumatism, and ordered 2 powders of 1 gm. of phenacetin with 0.2 gm. of caffeine sodio-benzoate—one to be taken morning and evening. On June 22 the two powders were taken. In the evening there was great pallor. The pulse was 80, respirations were 28 to 30, and the temperature was 98.2°. There were profuse sweating, nausea, vomiting of a cerebral type (cerebral anæmia), and inability to remain comfortably in one position more than a few minutes. This last symptom is also mentioned by LEWIN. After an injection of camphor and a small hypodermic of morphine a moderately good night was passed. On June 23 sweating had ceased, but the pain persisted. The general condition deteriorated in spite of camphor injections every 2 hours, and the administration of ammonia. At 3.30 an injection of normal saline solution was given without benefit. At 5 P.M. consciousness was largely lost. The pulse was 120, but the

respirations did not exceed 30. Cyanosis of the face and limbs occurred, and at 8 P.M. was extreme. At 11-45 death occurred.

The urine passed before death and also that obtained by catheterism 8 hours *post mortem* was of the colour of dark porter and acid. The filtrate deposited a copious precipitate on boiling (1·5 per thousand albumin). HELLER'S and the Guaiac tests for blood gave positive results, and on the addition of caustic potash the porter-brown was replaced by a burgundy red (methæmoglobin reaction). Methæmoglobin and oxyhæmoglobin were also demonstrated spectroscopically. The sediment of the urine consisted for the most part of hyaline and granular casts, which were covered with a precipitate of amorphous brownish-grey granules. These were dissolved on the addition of one drop of liq. potassæ to the urine centrifuge tube. There were no red or white blood corpuscles. The filtrate contained phenetidin—a decomposition product of phenacetin.

Thus both severe hæmoglobinuria and parenchymatous nephritis directly resulted from phenacetin poisoning. The anatomical changes found consisted in fatty and parenchymatous degeneration of the heart, extreme œdema and hyperæmia of the lungs, spleen, kidneys and liver, œdema of the brain, universal arteriosclerosis, and acute nephritis, chiefly localized in the convoluted tubules, many of which contained brownish casts. The blood, *post mortem*, showed considerable leucocytosis and remarkable pallor of a number of erythrocytes, though the majority were well coloured. Death occurred from vaso-motor paralysis, the extent of the blood changes being insufficient alone to account for it.

The writer's experience has convinced him that symptoms of poisoning after the various coal tar antipyretics—cardiac palpitation, dyspnœa, vertigo, and cyanosis or redness of the face—are especially liable to occur when alcohol is taken with or before the action of the drug has passed. Hence alcohol is contra-indicated in all cases of collapse after antipyretics and strong coffee should be substituted. The subjects most intolerant of the coal-tar antipyretics are those that normally perspire freely. Possibly also diminished alkalinity of the blood is a contra-indication.—*The Medical Review*.

Belladonna Poisoning from Linimentum Belladonnæ.

Dr. H. KNIGHT RAYSON reports a case of belladonna poisoning in a perfectly healthy male, aged 30 years, by the local application of belladonna liniment rubbed into the back for muscular rheumatism. The quantity used was three drams, and one hour later he was quite off his head and remained so during the night, getting no sleep whatever. The

patient was lying in bed with a startled, hunted expression upon his face, eyes bright and shining, pupils widely dilated, numbling and muttering speech, dry tongue and skin, trembling lips and hands, delirious, pulse 120, compressible and running. He vomited several times, contents undigested food. After bowels and kidneys were made to act well and opium gave him some sleep, he began to improve. Hypodermic injections of pilocarpine nitras had an excellent effect in quieting the pulse and making him more comfortable. That night the head symptoms were much better, and in two days he was practically well, the muscular pains having also departed. ("British Medical Journal," April 25, 1908.)—*Monthly Cyclopædia and Medical Bulletin*.

Snake-bite: Recovery.

("S. A. Med. Record," February, 1908).—BROWN records the case of a boy, aged 16 years, who was bitten by a puff-adder measuring 3 feet 9 inches. Two ligatures were immediately put tightly above and below the bitten knee. He was seen by Dr. BROWN four hours after the accident when he was collapsed and apparently *in extremis*; one tenth of a grain of strychnine was immediately given with brandy and hot stupes over the heart. Five large incisions were made over the bite and packed with crystals of permanganate of potash and an ESMARCH'S bandage placed round the middle of the thigh; this was loosened an hour later and caused great pain and collapse and further brandy and strychnine were given. This had to be repeated till in all half a bottle of brandy and half a grain of strychnine were administered. The leg became enormously swollen and huge bullæ appeared all over it. Two days later slight temporary fever appeared with rigors and the usual symptoms of sapræmia. Recovery was eventually complete. It is very unusual to see a report of recovery from the bite of a large deadly snake, especially when it has not been treated immediately.—J. PORTER PARKINSON.—*The British Journal of Children's Diseases*.

THE ANTISEPTIC.

OCTOBER, 1908.

The Need of Medical and Sanitary Legislation for India.

IT is fifty years since the Government of India came directly under the sovereignty of the British Crown. India during that half century has advanced by rapid strides in everything associated with civilization and enlightenment. If there is one branch of civilized administration in which the progress might have been a little more marked it is in the department of scientific medicine and modern sanitation. Medical and sanitary legislation is enforced in all civilized countries for the benefit of the community at large, and is seldom palatable to all the individuals that constitute a community. Sanitary legislation has in all countries to pass through the three stages of opposition, acquiescence and appreciation.

"An act to regulate the qualifications of Practitioners in Medicine and Surgery" was passed in Great Britain on the 2nd August 1858. It was a pity that medical men in India did not have a "loyal celebration" of the Medical Act of 1858 on the 2nd of August last. The Jubilee of that important legislative achievement would have been worth celebrating. But although it is over fifty years since that forward step was taken in Great Britain, our British Indian administrators have not yet taken any such step to protect the Indian subjects of the King-Emperor from the wiles and dangers of quackery. The preamble of the British Act says: "Whereas it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners: Be it therefore enacted" &c., &c. But is no such guidance required for the people of India? The Hakeems and Vydians do not profess to be anything more than what they are. They profess some knowledge of the Unani and Ayurvedic systems of Medicine and confine their practice to the teachings of those systems. They are comparatively harmless. But the Medical man with a smattering of knowledge of the European system of Medicine, with no qualifications and little experience, armed, not with the "syrup of squills and the calomel pills" of the old fashioned

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practitioners, but with "digitalin and aconitin and the hypodermic syringe", is only a little less dangerous to society than the destructive bombs of the Bengal anarchists. And the manufacture of such dangerous practitioners is on the increase.

Our contemporary the *Indian Medical Gazette* directed public attention a couple of months ago to the "continued multiplication of self-constituted bodies, granting diplomas and licenses to practise medicine which are colorable imitations of those bestowed by English Colleges and Indian Universities." We entirely agree with our contemporary and join with it in urging the Government to protect the public against the Calcutta-made spurious doctors. A Medical Act for India on the lines of the British Act, but with such modifications as are necessary to adapt it to Indian requirements, is urgently called for. And in this connection we may also point out to the Madras Government that a Public Health Act for the Madras Presidency would be a highly useful piece of legislation. At present the Health sections of the Madras Municipal Act and of the District Municipalities and the Local Boards Acts, together with the various Government orders passed from time to time, all put together serve as the Public Health Act for Madras. It ought to be easy to improve these and collect them together in one enactment. It would be better to have one uniform Act for the whole Presidency. Districts where it is not practicable to enforce the Public Health Act all at once may be exempted from its operation, for the time being, by Government notification. Now that the Government of India have manifested a desire to improve the sanitary condition of India, a Medical Act and a Public Health Act will be the best means of furthering that object, and also of commencing a new era of Medical and Sanitary progress in this the fiftieth year of India's prosperity under the British Crown.

CORRESPONDENCE.

Prevention of Plague.

SIR,

Much has been said and written on this important subject, but I think it will not be out of place to give expression to my thoughts on the subject.

Plague preventive measures are—(1) Removal of source of infection; (2) Inoculation; (3) Evacuation; and (4) Disinfection.

Removal of Source of Infection:—That rat infection is the chief and the most important cause of human infection is an admitted fact, and, therefore, whether the channel of infection be rat flea or not, and whether the rat be black or grey, our main object must be their extermination. But this is said

to be a difficult task and is likely to be the work of a generation. But I would advise every household member to adopt certain precautions to be carried out at a very little expense, and plague will soon disappear from our midst—(1) Keeping of cats; (2) rat holes to be treated with tar and sulphuric acid at least once a month; (3) the openings in houses which allow water, etc., should be grated on both sides, and, if possible, to provide pukka flooring for the houses.

Inoculation and Evacuation:—There are some who are in favour of, and some who are against inoculation. But my humble opinion is that it is undoubtedly a temporary expedient when plague has actually broken out. But at such a time *evacuation*, i.e., living in open air, would be a certain means of protection. I would, therefore, advise evacuation first and then inoculation in such cases.

Disinfection:—Now coming to the question of disinfection: Plague germs are not to be found outside the bodies of living creatures and that the microbes of plague soon disappear when brought into contact with the ordinary saprophytic earth germs. The experiments of the Plague Commission confirm this view. So, in my humble opinion, it is absolutely useless, during an epidemic of plague, to disinfect the floors and walls of houses, &c.

Therefore the only preventive measure to be adopted is, in my opinion, *destruction of rats*, and this is carried out in several ways, viz., by poisoning by bacterial substances producing disease among rats, trapping, and last, but not the least '*keeping of cats*.' Of the poisons, Phosphorus paste has been found more effective and superior to others, but it is rather costly for general adoption. Many bacterial substances have been tried with varying results which are rather disappointing. Trapping has an advantage in that it can be safely and permanently used but not always successful. '*Keeping of cats*.' Of all the methods this is the best, easiest and the cheapest method of destroying rats. The cat is the natural enemy of the rat. Cats destroy rats. Every villager can manage to keep cats in his house and thereby prevent plague. Let this be done and there is an end of plague.

It is a great pity that the general public has not yet been fully informed of the *life saving value* of "keeping cats" and though Lt.-Col. BUCHANAN, M. D., I. M. S., of Berar is doing his best to draw the attention of the authorities, yet nothing has as yet been done in the matter.

FAIR PLAY.

SIR,

I shall be much obliged if you or any of your numerous readers will let me know whether an expression like "Heart normal but decomposed" can be used in *post mortem* notes.

NORMAL.

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Original Article.

*THE X-RAY TREATMENT OF SKIN DISEASES. (LUPUS VULGARIS.)

BY

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[Continued from Page 543, Vol. V., "The Antiseptic."]

II.

DURING the past few years a good deal of controversy has continually gone on concerning the treatment of *Lupus Vulgaris*, some authorities maintaining that the Finsen treatment by the violet and ultra-violet rays is the best for all cases; others that the majority of cases do better under the X-ray treatment; and a third group holding the view that the best results, both as regards the scar and also the permanent benefit, are obtained by a combination of these methods, together with accessory treatment, such as radium scraping, etc., in certain individual cases.

Though we now know, from a vast experience at the Light and X-ray department at the London Hospital, the type of treatment which is most likely to be suited to any individual case, there are many cases in which both methods of treatment have to be adopted, each exerting its beneficial influence on the special variety of lesion to which it is applied. The Finsen treatment is not necessarily the best for all cases, but, when combined with the X-ray, is undoubtedly the best all round method of treatment for the majority of cases of Lupus. It is the non-ulcerative cases of Lupus, especially those previously untreated and affecting the face, that the Finsen treatment will be found to be most

* Specially contributed to *The Antiseptic*.

beneficial. Excision has often been attempted, and, though quicker in its results, is almost always attended by a good deal of disfigurement, and generally recurrence takes place in the scar, leading to the Finsen light and X-rays being finally applied to effect a permanent cure.

In the X-ray treatment of skin lupus the chief difficulties are, first of all, the elimination of the residual nodules which so frequently remain after such treatment, and which are invariably cleared up by Finsen's method, and secondly, the tendency for the X-ray scar to become telangiectatic, whereas the scar resulting from Finsen's treatment, after a short lapse of time being practically indistinguishable from the surrounding healthy skin.

Some authorities state that in cases of large extent, affecting nearly the whole of one or both cheeks, the Finsen treatment is apt to be unduly long, and have recommended initial treatment with the X-rays, finally treating the isolated nodules by Light, thus reducing the duration of treatment to a minimum.

However, unless time is a great object in the matter, or the patients, either owing to advanced age or ill-health, are unable or unwilling to submit to Finsen treatment, in all cases of dry Lupus of the face or neck, the latter, both as regards the resulting scar and the permanent excellent result, is undoubtedly the better treatment. The only exception to such treatment is the few and far between cases which so easily ulcerate under the light treatment, and in which the X-rays will, when properly applied, cause healing of the ulcer, thus converting the ulcerative form into the dry condition of the disease.

Taking these as the general lines on which treatment should be adopted, there are, however, certain conditions in which the X-rays should at least be the chief, if not the only method of treatment.

(a) *In all cases of Lupus Vulgaris affecting the mucous membranes [nose, lips, palate, gums, tongue, etc.]*

There is no doubt that the frequency of mucous membrane lesions in Lupus Vulgaris is not sufficiently well recognized, for in any analysis of a large number of cases the percentage always works out to nearly 50%.

In a series of 964 consecutive cases of Lupus seen at the London Hospital, the mucous membranes were affected in 417 or 43.2%.

Those affected were:—¹

The nasal mucosa	.. in	379 cases
„ lips	.. „	133 „

¹ *London Hospital Gazette*, January 1908: *Lupus Vulgaris of the Mucosa and its Treatment*.—H. Evelyn Jones.



CASE A.—Ulcerative & Mucous Membrane Lupus treated entirely by X-rays.
BEFORE TREATMENT.



CASE A.
AFTER TREATMENT.



CASE B.—Similar case of Ulcerative Oedematous & Mucous Membrane Lupus treated entirely by X-rays & cured.

The buccal mucosa and gums	..	in	51 cases.
„ palate	..	„	44 „
„ larynx	..	„	10 „
„ tongue	..	„	4 „

In the large majority of those cases in which lesions were present, other than the nasal mucosa, the latter was affected also.

CHRISTIANSEN states that in a thousand cases there were mucous membranes affected alone in but 10, nearly all having skin lesions before they appeal for treatment; yet practically in the majority the disease was primarily in the nose, and on an average the patients had the disease for $5\frac{1}{2}$ years before any affection of the skin took place.

ANDRY¹ had all his cases of face Lupus examined, and in every instance there were deep lesions of the nasal mucosa, and he came to the conclusion that this was the starting point of a large number of cases of Lupus of the face. The importance of these results is obvious, for in order to "catch" the disease in its early stages, attention must always be paid to the mucosa, and more especially to that of the nose. Unfortunately, perhaps, mucous membrane Lupus is not, as a rule, painful, and causes so few symptoms that no notice is taken of the nasal discharge until the skin lesions appear. If noticed, either the gravity of the trouble is not recognized, or, if recognized, treatment is not carried out in any confidential manner. The reasons which render the Light treatment unsuitable in these cases are:—

(1) Because in the large majority of cases it is impossible to focus the Light at all satisfactorily.

(2) The pain caused by the pressure glass used in this treatment is generally too great for the tender and inflamed mucous membrane.

(3) The form taken by the disease is often that of ulceration where it is impossible to use the Finzen Light.

(4) The results obtained by other methods of treatment—such as cauterization and X-rays, especially the latter—are better and more efficient. In the illustrations are seen two cases of Lupus chiefly affecting the mucous membranes which were treated entirely by the X-rays, both of which were entirely cured and have remained so during a period of four or five years.

In each the chief parts affected were the lips, nose, gums and palate: the skin being only involved secondarily from extension from the lips and nose. It is seen that many ulcerations and crusts are present, and usually this is a rule in these cases. These crusts must first of all be

1. CROCKER: *Diseases of the Skin*: Vol. II, p. 719.

Our Contemporaries.

MEDICINE.

The X-Rays in Phthisis Pulmonalis.

THE only clinching proof of the existence of phthisis pulmonalis is the detection of tubercle bacilli in the sputum: but there are cases of suspected phthisis in which no sputum is obtainable. A very careful physical examination of the apices may reveal the few suspicious râles at the end of a deep inspiration or after a cough, these râles persisting from day to day, although inspection, palpation, and percussion show no other abnormality. A persistent râle at an apex is always a cause for anxiety, and probably it is the very earliest of all the physical signs to which phthisis may give rise. Nevertheless, there are not a few cases in which tubercle bacilli are present in the sputum, and in which there may have been hæmoptysis, and yet there is not even a suspicious râle to be detected. In other words, the absence of all abnormal physical signs is no guarantee of the absence of phthisis, and this no matter how careful and experienced the examiner may be. This being so, any additional means of detecting phthisis early is to be welcomed, and such a means is to be found in the *x*-rays.

This is not to say that the *x*-rays should be employed in examining the lung in every case of phthisis, but the accumulation of a great quantity of evidence proves beyond doubt that, properly interpreted, the *x*-rays are as valuable a means of physical examination of the lungs and pleura as any we possess. It is quite clear, of course, that all the shadows and speckles seen in the affected lungs under the *x*-rays are not necessarily due to phthisis, for a resolving apical lobar pneumonia, for example, may be indistinguishable in a skiagram from tuberculous broncho-pneumonia or fibrosis. The interpretation of all shadows seen has to be made from other points in the case—history, symptoms, and so forth—as with other physical signs. If, however, a patient is suspected to have early phthisis, and if neither sputum nor ordinary physical examination of the chest serve to settle any doubt there may be, then it is possible that the *x*-rays will do so. It is well established that in some cases *x*-ray evidence strongly pointing to phthisis can be obtained before any abnormal physical signs exist. Further than this, in the large majority of cases in which definite signs exist at one apex only, *x*-rays will show shadows indicating that the other apex is involved.

There is some difference of opinion as to whether absence of *x*-ray signs at the apices can be taken to mean absence of phthisis. Enthusiasts

believe so firmly in the power of the *x*-rays to detect even the slightest lung mischief that they would say: no *x*-ray signs, no phthisis. This, however, is probably going too far. It is even probable that in some instances there may be positive evidence of phthisis on ordinary physical examination in a case in which the *x*-rays show no abnormality. In such a case the positive evidence of the ordinary physical signs is of much greater weight than is the negative evidence of the *x*-rays; but if in a suspected case the *x*-rays show signs at one or other apex, the probability of existent phthisis is considerable, even though there are no other abnormal physical signs whatever.

There are, some say, five *x*-ray signs of phthisis, but really these may be reduced to the following three, namely: (1) Some alteration in the movements of the diaphragm; (2) some deficiency in the clearness of one or other apex on deep breathing; (3) some mottling or speckling in the picture of the affected lung-apex. The other two points are: (a) alterations in the shape of the chest, especially such as cause asymmetry. These are too common to be of much value; they occur in many other conditions besides phthisis, and they do not occur in ordinary cases of phthisis until the latter is considerably advanced or fibrotic. (b) The cardiac shadow is often more vertical than it should be; this, it is supposed, is due to the puckering and fibrosis of one or other pleura drawing the base of the heart upwards, and so tilting the whole organ into a more vertical position. This might occur in a case of local pleural fibrosis of very old date, the result of some obsolete pleurisy.

Both halves of the diaphragm are to be very clearly seen under the *x*-rays, and their movements can be very accurately followed. If, in a suspected case of phthisis it is found that one side is restricted in its excursions, whereas the other moves perfectly well, the suspicion of disease is converted into a certainty. The reverse is not true; that is to say, free movement of both sides of the diaphragm does not exclude phthisis; but it is not at all uncommon to derive a great deal of assistance in diagnosis from these unequal movements.

Deficiency of apical clearness on deep inspiration is a sign of great value. Dr. C. THURSTAN HOLLAND says: "I have seen cases in which both sides of the diaphragm moved fairly well in ordinary and in deep respiration where no distinct abnormal shadowing was made out, and where everything appeared normal, but when a deep breath was taken one apex would light up brilliantly and the other by comparison remain opaque. In other cases, whilst the rest of the lung areas lit up in deep inspiration, the translucency of neither apex altered at all. Again and again I have

seen this appearance on the screen, and if it exists in a suspected case I think it is quite enough to go upon."

Mottling or speckling of the affected apex is not as a rule to be detected until the phthisis is pretty decided. Even with cavities in the lung, however, one knows perfectly well that the ordinary methods of physical examination may fail to detect any disease, and therefore a mottled apical shadow—due to scattered areas of fibrosis or consolidation, or cavitation with pus in the cavities—may be a sign of hitherto undiagnosed though suspected phthisis. The mottling shows best in skiagrams, whereas the deficient movement of the diaphragm and the deficient clearing of the apices on deep breathing show only on the screen. It is necessary, therefore, actually to see the patient under the *x*-rays for an opinion to be formed.—*The Hospital*.

Nineteen Cases of Sudden Death.

The question of sudden death is of such importance to every medical man that the following illustrative examples may be of service. They are consecutive cases from a single poor-law district, and so afford a rough idea of the relative frequency of some of the causes of sudden death. There were in the same period, and in the same district, altogether 1,000 deaths, mostly due to diseases that had been diagnosed before death; out of these 1,000 deaths from all causes, the following 19 were cases of sudden death, by which we mean death supervening within fifteen minutes of the beginning of the fatal seizure in persons who have been at their usual avocation up to the last moment, who are then suddenly taken ill, and are dead by the time the doctor arrives. They are the kind of cases which the general practitioner is called upon to examine *post-mortem*. It is obvious that, amongst only nineteen cases, it is not possible for every cause of sudden death to be represented, but since they are consecutive and unselected it is probable that the commoner varieties will occur in the series. The cases are not set down in the order in which they occurred, but rather in groups so that similar cases come together.

A.—CASES OF SUDDEN DEATH DUE TO CEREBRAL LESIONS.

CASE 1. *Ordinary Apoplexy*.—A male, aged 58, had a stroke six years before his death; at the time of that stroke he had partial hemiplegia, but from this he gradually recovered. He had done no active work since, but was up and about, and in good general health until the day of his death. On the forenoon of that day he went to the water-closet, and was heard to fall on the floor. Assistance reached him at once; he was speech-

advanced. The right arm was, with a faltering, ill-directed action, carried to the head. Respiration was slow and heavy without much stertor, the intervals between the efforts gradually increasing. The pulsations at the heart and wrist were full and powerful, and continued most distinctly for some time after respiration ceased. The pupils were at first contracted, and afterwards somewhat, but not greatly, dilated. Death took place in about eight minutes.

At the autopsy a very extensive cerebral hæmorrhage was found, which filled the ventricles, disorganised a large portion of the cerebrum, and extended under the pia mater all over the base of the brain. There was advanced chronic Bright's disease in the kidneys.

CASE 2. *Superficial Cerebral Hæmorrhage*.—A male, aged 56, formerly a smith, had not followed his avocation for four years owing to paresis of his left arm and leg; he had enjoyed good health, however. He had had to make prolonged efforts during micturition for some while past. On the day of his death he went to a urinal, and whilst micturating was observed to glide easily to the ground; he gave two or three short cries, accompanied by long-drawn inspirations, but there was no struggling. Within two minutes after he fell he ceased to breathe, but the heart continued to beat, forcibly at first, and afterwards in a series of three or four faint pulsations at gradually lengthening intervals, for nearly three minutes. The face was not remarkably livid; the pupils were moderately dilated. Death took place in between four or five minutes.

In this case an extensive superficial hæmorrhage was found covering a large portion of the brain. The fourth ventricle was the only part of the interior in which effused blood was present. There was no organic disease other than atheroma of vessels.

CASE 3. *Multiple foci of Cerebral Softening*.—A male, aged 71, was found dead in bed at 4 A. M., having retired to rest at 8 the preceding evening, to all appearances in his usual health. At autopsy the brain showed no effusion of blood anywhere, but in several parts of its interior, particularly in the white matter of the cerebrum, in the corpora striata, optic thalami, and crura cerebelli, there were many little irregular pits of ochrey colour, closely resembling in form and size those seen on cutting open a Stilton cheese. All the cerebral arteries were very atheromatous, with calcareous patches; they were quite full of clotted blood firmly moulded within them.

The whole aorta was rigid and inelastic from atheromatous and calcareous changes; the heart seemed healthy, except for atheroma of

the aortic valves; the *kidneys* were smaller than usual, and granular upon the surface, but not more so than is almost the rule in men of this age.

CASE 4. *Cerebral Syphilis*.—A female, aged 28, had suffered for many years from the effects of syphilis. There had been caries of the frontal and right parietal bones, and on several occasions she had had general convulsions, sometimes with, sometimes without, loss of consciousness. On the evening of her death she seems to have had a very severe fit when in bed at 9 P. M.; deep coma supervened, and she died in a few minutes.

The brain was small and atrophied; it was the seat also of gummatous infiltration. No other organ was affected.

B.—CASES OF RUPTURE OF AN ANEURYSM.

CASE 5.—A female, aged 74, was in bed at 10 P. M., whither she had retired two hours before, apparently in her usual health. Her bed-fellow found her make a sudden attempt to get out of bed, and fall back during the effort. She was dead almost instantaneously.

A small saccular aneurysm just above the aortic valves had ruptured into the pericardium, which contained about twenty ounces of blood.

CASE 6.—A male, aged 59, a weaver, of spare frame, medium height, and temperate habits, took a short walk, and on his return was practising upon the violoncello, previous to playing it at church, when he was seized with intense pain across the forehead, vomiting, and faintness. He sat with his body bent forward, the face pale, shrunk, and expressive of agony, the pupils slightly dilated. The intellect was at first unimpaired, though the pulse was scarcely perceptible; he soon experienced intense pain in the cardiac region, became unconscious, and died.

A recent dissecting aneurysm of the ascending aorta was found, which had ruptured into the pericardium.

CASE 7.—A male, aged 35, a tall, well-developed, stout young man, had been very intemperate in his habits, but had also worked hard in a factory. He had recently complained of obscure pains in the back, but had not seemed extremely ill. When in bed one evening he was heard to groan, and was immediately after seen to turn on to his left side. He died within a few minutes.

It was found that an aortic aneurysm had partially eroded the third dorsal vertebra, and then burst into the left pleural cavity.

C.—CASES OF SUDDEN DEATH DUE TO DEGENERATION OF THE MYOCARDIUM.

CASE 8.—A male, aged 54, a tailor, ate a hearty breakfast at 8 A. M. having previously worked upon his shop-board for two hours with his accustomed energy. After the meal he returned to his work in the usual cross-legged posture, then went to the water-closet, returned to his work again, and a few minutes afterwards spoke of pain in the head; he immediately fell from his seat dead.

The brain was examined with minute care, but no lesion could be found. The veins and sinuses were enormously distended with blood, as were also the arteries. It is just possible that there may have been an embolism, but no embolus was found, nor was there any source for one discovered; moreover, the cerebral arteries as well as the veins were full of blood, so that, notwithstanding the pain in the head he had complained of, it seemed more likely that the congestion was due to failure of the heart. The latter was thin walled, and the muscle was friable; there was extensive atheroma of the aortic valves, but no incompetence or stenosis; the coronary arteries were also atheromatous, and this seemed to be the likeliest cause of the pooriness of the heart muscle. Neither the kidneys nor any of the other viscera were diseased. The stomach contained a large undigested meal, consisting chiefly of porridge.

CASE 9.—A female, aged 73, a tall, hearty, old woman, was sitting upon the water-closet, to which she had walked unassisted, when she suddenly called out that she was blind. She was helped into a chair; there was no struggling; in less than ten minutes she was dead, the pulse ceasing rather before the last inspiration was heard. Upon inquiry it was found that she had complained of palpitation for two or three days before death.

No cause for death existed, except the condition of the heart, which was the seat of extensive fatty infiltration. Around the upper attachment of the peritoneum was a complete collar of fat, one to three inches deep.

CASE 10.—A male, aged 71, a robust-looking, stout man, had been subject to winter cough for years, but was otherwise in pretty good health. On a winter's day he ate heartily of porridge and milk in a warm room, and immediately afterwards went out into the cold air, walking with alacrity across an open yard; suddenly he "lost his breath," and, seizing some railings, glided to the ground. He was carried indoors. The doctor arrived two minutes later, but found life extinct.

The face was livid, the pupils a little dilated. The cause of death was acute dilatation of a fatty right ventricle, following the exposure to cold and exercise after a full meal.

CASE 11.—A male, aged 56, knew that he had a thoracic aneurysm; being very depressed at this, he attempted to commit suicide. He used an old rusty shoemaker's knife, and tried to cut his throat with it. The knife was so blunt that the skin was only excoriated, and no blood had flowed; he was heard to fall, and his friends rushed in and found him still breathing, but he was dead a moment or two afterwards.

A large aneurysm of the ascending aorta filled nearly the whole of the central part of the chest. Portions of the sternum and of three of the vertebræ were absorbed by the tumour, which was making its way behind the right clavicle. No part of the sac had given way.

The cause of death was undoubtedly syncope caused by the excitement under which the man was labouring.

D.—OTHER CASES.

CASE 12.—*Sudden Death Due to Valvular Heart Disease.*—A female, aged 45, died unobserved during the night. She had not been under medical treatment, and had made no complaint. She ate her supper as usual, and went to bed apparently in good health. She was found dead next morning; a little blood was oozing from her mouth on to the bed clothes.

The cause of death was an unsuspected mitral stenosis of old standing. Pulmonary apoplexies accounted for the blood which escaped from the mouth.

CASE 13.—*Mediastinal New Growth Obstructing the Air Passages.*—A female, aged 67, was in the act of dressing herself one morning when, suddenly becoming faint, she sank into a chair and expired in a few minutes. It was in the winter, the morning was cold, and there was no fire in the room. She had apparently been in quite good health hitherto, though on inquiry it was found that she had complained of some dyspnoea the day before her death.

The cause of death was asphyxia from obstruction to the air-passages, due to a large mass of mediastinal growth, together with dilatation of the right ventricle. The lower part of the trachea and both the bronchi were much compressed and flattened.

CASE 14. *Persistent and Very Large Thymus Gland.*—A male, aged 10, was found dead in bed one morning. He had been feeble-minded; he was put to bed in his usual health the night before his death;

he had never been the subject of epilepsy, nor had he been suffering from any disease requiring medical treatment.

Post-mortem, the brain was very small, which was to be expected seeing that he was an idiot; there was no other morbid lesion within the cranium. The thymus gland was of great size, mottled, with intense congestion and minute spots of extravasated blood. The thyroid gland was also larger than normal. The suprarenal capsules were small, each weighing less than half a drachm. The remaining viscera were all healthy to the naked eye. It was clear that the thymus gland, particularly if it should from any cause become more turgid than usual, must from its great size have materially compressed the great blood-vessels and breathing tubes in the upper part of the chest. Death was in all probability due to asphyxia. The condition is what the Germans style "Thymus-Tod," and is closely related to the "status lymphaticus," which has been much talked about of late.

CASE 15. *Acute Phlegmonous Œdema of the Glottis.*—A male, aged 69, a hale, powerful old man of large frame, and generally good health, was suddenly seized with acute suffocative dyspnoea early one afternoon. A doctor was called in at once, but from the moment of his seeing the patient until his last inspiration scarcely a minute elapsed. A feeble pulse was twice perceived, but the inspiratory movements had ceased. The countenance was pale and cyanosed; the pupils were of natural size; the jugular veins were enormously swollen, like great cords passing down the neck. It appeared that this old man had been out for a holiday the day but one before his death, and came home in his usual health. He had first complained of slight indisposition on the morning of his death, and had consequently remained in bed. The moment of seizure was carefully observed; and from the concurrent testimony of many it is clear that not more than two and a-half minutes intervened between that time and death.

The immediate cause of death was in the larynx: the epiglottis was erect, its apex and sides greatly swollen and œdematous; at its base on either side were many pale yellow purulent foci in the cellular tissue, and there were similar foci over the inner surfaces of the arytenoid and thyroid cartilages; in the glottis itself there was so much œdema that the passage was completely occluded, serous fluid flowing out on puncturing the mucosa. The kidneys and other organs showed no changes of importance. The condition was one in which the only possibility of saving life was instantaneous tracheotomy, as in the similar cases described by Sir Felix Semon.

CASE 16. *Sudden Hæmatemesis*.—A male, aged 24, had led a very dissolute life; but although pale and sickly in appearance his general health was good, and he was well nourished. He had been doing his ordinary work one morning; and then, after mid-day dinner, he was carrying a heavy box up a flight of steps. He suddenly noticed blood in his mouth, and immediately there was profuse hæmatemesis. He was dead in two minutes, the last efforts at inspiration being accompanied by a deep purple congestion of the face. Almost the last indication of life was a general epileptiform convulsion.

The liver was extremely large and firm, in a condition of hypertrophic cirrhosis. The kidneys and spleen were also hypertrophied. There was no lesion in the stomach, lungs, heart or brain; the blood seemed to have come from ruptured varicose veins at the lower end of the œsophagus.

CASE 17. *Hæmoptysis*.—A male, aged 33, tall and well made, was known to have phthisis, but was not laid up with it. He was straining at stool and coughing, when he began to spit blood rapidly; the hæmoptysis continued, and in about twelve minutes he was dead, dying of suffocation rather than from loss of blood.

The only diseased organs were the lungs; these were the seat of extensive phthisis; in the wall of a large irregular vomica in the left upper lobe there was an exposed pulmonary arteriole, not occluded by clot; and from an opening in this the fatal hæmoptysis had occurred. The bronchi and trachea were almost completely full of blood.

E.—CASES IN WHICH NO ADEQUATE CAUSE FOR SUDDEN DEATH WAS DISCOVERED AT THE AUTOPSY.

CASE 18. *History of Convulsions. No Lesion Found*.—A male, aged 44, was found dead in bed. He was a short fat man, who for two years previously had been the subject of severe epileptiform fits, which were often succeeded either by maniacal excitement or by quiet incoherence, which passed off in a day or two. He went to bed after his evening meal, apparently in his ordinary state of health. In the morning he was found dead, the face very much congested.

All the organs were carefully examined, but no obvious cause of death could be found. The brain itself was healthy, but the pia-arachnoid membranes covering the cerebrum were opaque, and there was excess of subarachnoid fluid. There was a small concretion in the vermiform appendix, but no evidence of recent appendicitis. The heart, lungs, air-passages, kidneys, and other organs were all natural.

CASE 19. *Sudden Death in the Night. No Adequate Cause Found*.—A male, aged 12, during the night before death, having previously been in good health, rose from bed two or three times and vomited; sleeping, however, during the intervals. Next day he seemed to be in fairly good health, though he was listless. Next night those sleeping in the next room heard him breathing hurriedly, but they did not go to him. Two hours later he was found dead in bed. The limbs were rigid, frothy saliva had flowed down the chin, and the fingers were firmly flexed with the thumb opposed, not to the palm, but to the forefinger.

The brain showed no abnormality, notwithstanding a very careful examination of every part of it. None of the organs showed any pathological changes; the only point of note, though probably not connected with the cause of death, was that eight specimens of *ascaris lumbricoides* were found in the small intestine.

In conclusion, we would point out once more that cases of sudden death as a termination of diseases which are under treatment are excluded from the above; so that sudden deaths from such causes as embolism after operations, and so forth, do not come in. Sudden deaths from external causes, such as accidents, cut throat, murder, bullet wounds, and poisons, are also excluded. The nineteen cases are consecutive, but we would call attention to the absence of representative cases of some other not uncommon causes of sudden death, particularly (1) pontine hæmorrhage, (2) rupture of a thoracic aneurysm into a bronchus, (3) aortic incompetence and (4) Addison's disease.—*The Hospital*.

Some Drug Reactions in Urine.

VARIOUS colourations and reactions of the urine may be due to something that the patient is taking by the mouth. The following is a brief summary of some of the commoner drug reactions in urines:

Copaiba, Copaiba resin, Cubebs, Balsam of Peru, Balsam of Tolu, and other resins and balsams all cause the urine to give a white ring when the nitric acid test for albumen is employed. The possibility of this source of fallacy leading to grave errors, in connection with life insurance, for example, is obvious. The white ring is due to the resin in the urine being precipitated by the nitric acid. The ring is less well defined, and less closely related to the line of junction between the urine and nitric acid than is that caused by albumen; and on adding a few drops of rectified spirit the coagulum of albumen does not dissolve, whereas a resin disappears at once.

Rhubarb and Senna contain chrysophanic acid, which gives the urine a bright yellow-brown colour. When suspected, the first test is to add an alkali, such as caustic soda solution or liquor potassæ, when the colour deepens to a red or red-brown. It is distinguished by two further tests: first, the red colour persists on standing instead of fading as some others do; secondly, the colour is removed from the solution and carried down in the precipitate on adding a barium salt, such as solution of barium chloride.

Santonin causes the urine to have a peculiar yellowish-green colour, due to the presence of oxysantonin. The addition of an alkali causes a red colour to appear, as in the case of rhubarb and senna, but this red is not precipitated by barium chloride; moreover, if the urine which has been alkalisied is allowed to stand the red colour fades gradually away, which is not the case with that due to chrysophanic acid, rhubarb, or senna.

Salicylic acid, methyl-salicylic acid, mesotan, aspirin, aceto-salicylic acid, sodium salicylate, and other preparations containing the salicyl radicle cause the urine to give a deep reddish-brown or reddish-purple reaction with ferric chloride solution. The main importance of this lies in the fact that it may cause confusion when aceto-acetic (di-acetic) acid is being tested for in cases of diabetes mellitus, and so forth. For one thing, if di-acetic acid is present in a urine it is usual for acetone to be present also; acetone is readily recognised by the sodium nitroprusside test; if, therefore, in any given case the sodium nitroprusside test is negative, and yet the urine gives a strong ferric chloride reaction, some source of fallacy in the di-acetic acid reaction would be suspected, such as the presence of salicylic acid products in the urine. There are two subsidiary points of distinction between the ferric chloride reaction, due to di-acetic acid and that due to salicylates—namely, first, that the reddish purple colour persists on boiling if it is due to salicylates, whereas it is discharged if due to di-acetic acid; and, secondly, if the cold urine, to which ferric chloride has been added, is shaken up with ether, the red colour due to interaction of ferric chloride and di-acetic acid is taken up by the ether and thus extracted, whereas the red substance produced by the interaction of ferric chloride and salicylates is insoluble in ether.

Antipyrin and drugs of the antipyrin series may be a source of considerable confusion in urine-testing in cases in which the patient is taking the drug unknown to others; at the same time, a knowledge of drug reactions in the urine may assist one in detecting the habitual secret taking of hypnotics such as antipyrine. The urine gives a red-brown or red-purple reaction with liquor ferri perchloridi, precisely

similar to that caused by salicylic acid, and, like the latter, the reaction persists in spite of boiling, and the red substance is insoluble in ether. At the same time the urine is very likely to give some reduction of Fehling's solution without there being any crystals on applying the phenylhydrazine test, and without there being any fermentation of the urine by yeast.

Tannic acid, gallic acid, and tannigen cause the urine to go very dark on the addition of ferric chloride solution owing to the formation of ink by some of the tannates or gallates appearing in the urine.

Carbolic acid, creosote, and arbutin, the active principle of uva ursi, may cause the urine to assume a characteristic colour that may be anything from pale greenish to dark green, almost black. This colour may not be present when the specimen is first voided, but develops gradually from oxidation on exposure to the air. It is seldom that any difficulty of diagnosis arises, because the source of the carbolic acid is at once suspected and traced. Bile pigments may be excluded by the absence of jaundice in the patient, and by the fact that the urine does not give Gmelin's test. The urine of an alkaptonuric subject may present similar colouration, but in him the history would be a continuous one of long standing.

Potassium bromide causes a brown discolouration of the urine when nitric acid is added, owing to the liberation of free bromine. If a little chloroform is added, the bromine is extracted by the latter. The other substance which may give a similar reaction is indican, which sometimes gives a blue, sometimes a rose-red, colour on oxydation with nitric acid; in each case chloroform extracts the coloured substance, but the brown red of bromine is quite unlike the rose-red of one of the indican products.

Potassium iodide and iodoform cause a reaction with nitric acid, by which iodine is liberated from the iodide in the solution. Moreover the tincture of guaiacum test for blood gives a greenish-blue reaction in the presence of iodides even when blood is absent. This behaviour of the guaiacum test in patients taking iodides is important to keep in mind.

The following drugs may cause the urine to reduce Fehling's solution: chloral, chloral hydrate, butyl chloral hydrate, carbolic acid, salicylic acid and its allies, camphor; and the antipyrine series.

Morphine, glycyrrhizin and the various preparations of liquorice, amyl nitrite, volatile oils, carbon monoxide, hydrocyanic acid, sulphuric acid, mercury salts, and lead may also produce an increased formation and elimination of glycuronates, and therefore some reduction of

Fehling's solution. In all these cases, however, neither of the two confirmatory sugar tests—that by fermentation and that with phenylhydrazine hydrochloride—is positive if the reduction is due solely to the effects of the drug.—*The Hospital*.

The Influence of Urotropin on the Urine.

INTERESTING findings are reported by RICHARD STERN (*Zeitschrift f. Hygiene u. Infektionskrankh.*, Vol. 39, 1908), in which he says: With urotropin a liberation of formaldehyde or antiseptically-acting formaldehyde compounds best takes place in acid urine. A urotropin urine with alkaline reaction is less antiseptic. By alkaline urines STERN means urines to which sodium bicarbonate has been added. There is, therefore, no contradiction between his experimental results and the clinical observation that urotropin acts well when the urinary reaction is alkaline. For a clinically alkaline urine means one which has undergone ammoniacal decomposition—one which is acid in the kidneys and is only in the bladder infected with uric acid-decomposing bacteria. For the practical employment of urotropin it is important not to weaken its action by simultaneous free administration of alkalies.

Though free flushing of the urinary organs is rightly regarded as an important therapeutic measure, it involves diluting the antiseptic in the urine. Therefore, when the dose of urotropin cannot be proportionately increased, the patient should be ordered to drink large amounts of liquids throughout the day, while larger doses of urotropin are given morning and evening.

Deep seated inflammatory processes of the bladder, renal pelvis, and the like, are less amenable to urinary antiseptics. In tuberculosis and other deeply penetrating infectious processes, a cure cannot be attained with urotropin. The remedy is, however, of service by restraining bacterial development in the urine and alleviating the irritating action of the urine on the diseased mucosæ.

STERN thinks urotropin is by no means used enough before and after instrumental procedures on the urinary organs. Urotropin in large doses uniformly distributed (60 grains a day in 3 to 6 doses) should be given in all cases in which obstructed urination favors infection, before and after the introduction of instruments (catheters, cystoscopes), and before and after gynecological or surgical procedures in which injury or contusion of the bladder may occur. STERN recommends a large dose late at night, to render the nocturnal urine antiseptic. Otherwise much of the success attained during the day is negated during the night.

In phosphaturia, says STERN, urotropin acts when the excretion of urine turbid with earthy phosphates is due to ammoniacal fermentation. His cases of this class were mostly of preceding gonorrhœa in which secondary staphylococcus infection occurred. In neurasthenics, who often suffer from hyperacidity and constipation, and therefore freely take alkaline waters and vegetable acid salts, the food alone may suffice to produce an alimentary phosphaturia. Here urotropin is unavailing. But when the urine of such patients is weakly acid or neutral, a moderate formation of ammonia or uric acid decomposing organisms suffices to induce precipitation of earthy phosphates. A stronger urinary infection can, of course, also lead to phosphaturia, even if the food is not responsible. In such cases the phosphaturia is rapidly obviated by urotropin in medium-sized doses. Usually the urotropin must be given continuously, because generally only an inhibition of uric acid-decomposing organisms is effected.

STERN considers it erroneous to speak of the dose. It varies in accordance with the resistance of the disease producers and other factors in each individual case. Often when $7\frac{1}{2}$ grains urotropin thrice daily proved unavailing, the number of bacteria rapidly decreased when the dose was doubled or trebled.—*The Buffalo Medical Journal*.

The Treatment of Cholera.

As cholera is spreading very rapidly in certain parts of Europe and Asia, the following valuable contribution as to the treatment of that dreaded disease, by Dr. R. W. BURKITT, of Sylhet, Lower Assam, which appeared in the *British Medical Journal* will be much appreciated by our readers in India and abroad:—

During the cholera epidemic in this valley in February, March, April and May, 1908, the death-rate among untreated cases cannot have been under 95 per cent., and the interval between the onset of symptoms and death has been on an average ten hours. It has been quite common to see adults die in six or eight hours, and I have seen children die in two hours. The history and death-rate of sporadic cases occurring since the epidemic had been almost as fearful. Any treatment by the mouth is hopeless, as vomiting begins very early immediately after the first onset of diarrhœa, and is very frequent and profuse. For the same reason treatment by the bowel is useless.

Since I began treating all cases, as early as possible, by $\frac{1}{4}$ grain or $\frac{1}{2}$ grain of morphine hypodermically, I have not lost one patient, provided he was injected early and before very profound collapse had set in.

Many cases have been injected, with the happiest results, even when in the most profound collapse—apparently moribund, in a state when vomiting and diarrhoea, and almost all signs of life have gone. Children do as well as adults.

After cholera, in a certain number of cases a typhoid condition ensues which needs careful nursing and dieting; in this state I have lost a few patients owing to the want of these necessities. The hypodermic injection of morphine is the first of two essential factors in treatment; the other is water in enormous quantities every few minutes while awake, from start to finish. If the patient is terribly collapsed I give the morphine first and immediately afterwards saline intravenously. It is useless to give water by the mouth then, as it will only excite vomiting and increase the collapse. I have never seen a case where the injection did not in a few minutes stop vomiting, diarrhoea, colic, and cramps, and give perfect rest, and in the majority of cases sleep from five to eight hours. In most cases immediately the morphine has taken effect, and before sleep supervenes, the patient asks or makes signs for water, and drinks plentifully, mostly without further vomiting; when the patient wakes, the collapse has to a large extent gone, his pulse has returned, his sunken appearance has changed, and he asks for water constantly. He sometimes vomits once or twice eight to twelve hours after the injection; this is due to the morphine, and is quite different to the vomit of cholera.

In a very few instances I have known the choleraic symptoms to reappear in twenty-four hours, but on receiving another injection of $\frac{1}{4}$ grain they vanished and the patient ultimately recovered. This recrudescence was probably due to some indiscretion in diet; I never allow any nourishment for at least twenty four hours.

My experience is that after the injection, the more water can be got into a cholera patient either by mouth or by vein, or both, the greater will be his chance of recovery and the quicker it will be effected. I find plenty of water and hot tea the best diuretics, and the latter very good for collapse. In cases where the injection has been delayed for several hours and a large depletion of liquid has taken place, urine may not be passed for two or three days. This should cause no alarm, as, if water and hot tea be liberally given, the kidneys always secrete in due time. I have not found strychnine or alcohol of any advantage, and beyond the injection I never give drugs of any kind; afterwards, with regard to diet, the patient is treated as a newly born infant.

My theory with regard to the value of morphine is that it gives the system a perfect rest, during which it manufactures an antitoxin.

Anyone who has watched a bad case of cholera must at once come to the conclusion that, owing to the awful restlessness and pain, a sedative, which does not cause further collapse is immediately indicated. Seeing the prodigious quantities of albuminous water vomited and passed by the bowel constantly, one is driven to the conclusion that water in enormous quantities must be got into the system to replace the lost. Further, in seeing a case profoundly collapsed almost as soon as, or even before, any depletive action has begun, one must again become convinced that it will require great quantities of water to clean a system so saturated with poison.

The following history of a case will show the necessity of keeping the bowels absolutely quiet, and the harm done by any purgative.

A girl, 14 years old, was injected five hours after the beginning of symptoms with $\frac{1}{4}$ grain of morphine; she was then in an utterly collapsed state; vomiting, diarrhoea, colic, and cramps in the limbs at once stopped; she slept for six hours. She then drank plentifully. In five or six hours the abdomen became distended (tympanites due to morphine), but without causing any marked symptoms or discomfort. The native dispenser considered this distension an indication for calomel, and gave a dose of 3 grains and in an hour another dose of 1 grain. This started all the choleraic symptoms again, profuse rice-water diarrhoea and vomit, colic and cramps in the limbs, and then collapse. The dispenser, seeing his mistake, gave another $\frac{1}{4}$ grain of morphine; with the same results as previously. The case did most happily.

I have had many hundreds of cases all treated under the worst possible conditions in their own filthy huts, without any ventilation or light, and without any nursing, and the subjects were tea estate coolies and Bengalees. If the morphine and water treatment has been so successful in such untoward conditions, how much more would it be so under favourable circumstances.—*The Medical Times*.

The Palmo-Plantar Sign in Typhoid Fever.

GIOVANNI (*Rif. Med.*, January, 1908) observed 220 cases of Typhoid fever in 6 years and found a yellow discoloration of the palms of the hands and soles of the feet, affecting the most prominent parts; the colour varying from that seen after tobacco-stain upto the bright yellow of pieric acid, followed at a later stage by desquamation. Out of 220 cases, this sign was present in 216 cases. Usually it appeared within the first week and often before the spleen could be felt or any rash appeared, so that it may be of value as an early sign. It reached its full development towards the

end of the 2nd week. It is always bilaterally distributed. The author has observed a similar discoloration in some cases of croupous pneumonia and in polyarticular rheumatism; never in scarlet fever, diphtheria, measles, tuberculous meningitis, acute miliary tuberculosis or septicemia. From the fact that diminution or abolition of tactile sensibility was observed in many of the author's cases, he is inclined to believe that the nervous system may play a part in the pathogenesis of this curious discoloration." (*B. M. J. July 11th, 1908.*)

Diabetes.

In diabetes, no matter what diet we allow, sugar is still formed by the organism. Even when the carbo-hydrates are entirely cut off, sugar is manufactured out of the proteids, and when these fail, out of the tissue cells. This should be, to us an indication that this production of sugar is a means of defence against some unknown disease-cause. We should not deprive the system of the carbo-hydrates, but should allow a natural and normal diet. To deprive the patient of carbo-hydrates is an illogical measure. We are fighting against nature's method of cure. So much sugar is not made to be wasted. Deprivation of carbo-hydrates means starvation and hastening of the patient's death. In countries where no meat is eaten and where much sugar is consumed, diabetes is absent; and in meat-eating countries it is on the increase."—R. C. ECCLES—*Med. Rec. May 9, 1908.*

On some Modern Methods for the Clinical Examination of Urine & Gastric Juice.

BY

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(General Practitioner.)

Nowadays, in every branch of medicine, the great importance of accurate clinical investigation is well recognised. While, however, clinical laboratory investigation is pursued as a matter of routine in almost all the medical institutions of the world and also by many private practitioners, yet, owing to the tedious nature of many of the processes and the large amount of time necessary for their performance, they are wholly or in part omitted by the vast majority of medical men. Perhaps the factor most responsible for this defection is the unsuitability of the methods in vogue in the hospitals and large laboratories to the capacities of the private worker. A laboratory assistant who makes quantitative estimations in anything from five to twenty specimens is able to

employ the necessary time to far better purpose than the isolated practitioner who is working on a solitary specimen, even though the examination may be the one thing needed to assist him in arriving at a proper conclusion with regard to his case. Yet the isolated worker stands in just as much need of assistance of this kind in arriving at a diagnosis as the hospital resident with his well-equipped laboratory.

It is the purpose of the present paper briefly to pass in review certain of the newer methods for the quantitative examination of both urine and gastric juice which have but recently filtered across to this country, and to show that in addition to other merits they possess that of being well within the scope of the daily routine of the general practitioner.

Let us first take the case of albumin in the urine. I wonder were a census on the point to be taken how many general practitioners would be found to possess the ordinary albuminometer of ESBACH, and, even possessing the instrument, how many use it with anything approaching habit? Until quite recently, with the exception of the PURDY tube, this was practically the only piece of apparatus by means of which the amount of albumin present in any sample of urine might be determined with reasonable facility. Doubtless much useful work has been done with ESBACH'S tube, but it is quite certain that a test which is only accurate for values at or above one-half *pro mille*, and which besides takes 24 hours to complete, falls very far short of the ideal. A much more efficient instrument¹ has lately appeared and is described by its inventor, Dr. H. R. HARROWER, in the journal of the American Medical Association (Vol. LI., No. 7). It consists of a graduated tube and a reagent (phosphotungstic acid, 1.5 grammes; concentrated hydrochloric acid, 5 grammes; and 95 per cent. alcohol, 100 cubic centimetres). One cubic centimetre of urine is diluted with 9 cubic centimetres of distilled water, and this is added drop by drop to the reagent, shaking after each addition until the appearance of a faint white cloud. This denotes the completion of the reaction and the level of the fluid in the tube is read off. It corresponds to the amount of diluted urine which contains one-tenth of a milligramme (0.0001 gramme) of albumin. The percentage is easily reduced, but a table is supplied with the instrument to assist the calculation. This is without doubt a far more practical instrument for both hospital assistant and home worker

1. This and all the apparatus described in the paper can be obtained from all purveyors of chemical and medical apparatus. They are also sold in a complete set (with all test solutions, etc., for quantitative determination of sugar, albumen, urea, uric acid, phosphates, Indican, etc., total acidity, and free hydrochloric acid of the gastric juice), under the name of "Quantitest" (price 33s. per case), by the Roborat Co., 8, Harp Lane, London, E.C.

than the ESBACH or PURDY tubes, and some idea of the accuracy of the test may be gathered from the fact that it is sensitive to one-tenth of a milligramme.

In the matter of the estimation of sugar also much has been done in the later instruments to simplify and to facilitate the test without impairment of accuracy. While FEHLING'S solution is undoubtedly one of the best reagents for qualitative work, its application to quantitative analysis in the hands of the inexperienced is fraught with serious jeopardy to accurate work. When one remembers with what apparatus and under what conditions of light, etc., these estimations are often made in the surgery of the general practitioner, one can but dimly speculate upon the possibility of anything in the shape of a reliable result being forthcoming. Moreover, apart from the possibility of experimental error, there are actual fallacies attendant upon the use of FEHLING'S solution. These are due to the fact that other substances in the urine can reduce cupric oxide. The chief of these are uric acid, creatinine, hippuric acid, lactose, glycuronic and glycosuric acids, and certain drugs. There is only one absolutely certain test for glucose—*i.e.*, the fermentation test, glucose being the only fermentable substance ever found in urine. Much attention has lately been paid to the improvement of the various forms of saccharometer—*i.e.*, instruments for estimating the amount of sugar by the fermentation method. The latest instrument of this kind, which will be found to fulfil every requirement in practice, is a graduated U tube in which evolution of carbon dioxide by fermentation causes displacement of a column of mercury. It is possible to register the sugar contents in twentieths per cent. up to 1.5 per cent. and thence in halves per cent. to 10 per cent. The instrument is cheap, simple, and effective, and will doubtless supersede all other forms of saccharometer.

For the estimation of urea, no better piece of apparatus has been devised than that of DOREMUS. The improved form of this excellent instrument renders possible the urea determination in 1 cubic centimetre of urine within the space of a few minutes. The only reagents required to be kept at hand are a 40 per cent. solution of sodium hydrate and measured quantities of bromine contained in bulbs.

The estimation of these three—albumin, sugar and urea—represents the extent to which urine is chemically examined for clinical purposes by any one not in possession of a clinical laboratory. It has hitherto been impracticable, for instance, for the average practitioner to determine the contents in a given specimen of urine of so important a constituent as uric acid. He takes up his text-book in search of an available method

and finds himself duly instructed in the details of such procedures as that of HOPKINS. What he is not told is that, ready to hand at a minute's notice, is a reliable instrument such as that of RUHEMANN, by means of which the uric acid mystery may be solved within the space of half an hour or less. I do not think this method is very generally known in this country; its importance certainly entitles it to some description here. The principle involved is the fixation of free iodine by uric acid. The apparatus consists of a graduated tube and two reagents—(1) an iodo-iodide solution resembling GRAM'S solution in composition, and (2) bisulphide of carbon. The latter is poured into the tube up to the mark indicated; the iodine solution is added to a further mark. Diluted urine is then slowly added until the bisulphide of carbon, which from a deep violet hue acquired on the first addition of urine, passes through various depths of pink and finally becomes snow-white. This denotes the completion of the reaction, and the level of the mixture in the tube is read off on a graduated scale provided and indicates in values *pro mille* the amount of uric acid present in the diluted urine. The possibilities of this simple test in private practice are too important to be overlooked. The apparatus is quite inexpensive and its utility will well repay the outlay.

Another simple quantitative test is that for phosphates. This is done by a reliable little instrument called a "phosphatometer." It consists of a graduated tube and one reagent. The tube is so graduated that all that is necessary is to add the reagent to a given quantity of urine, and read off the level of the resultant precipitated phosphates on the scale provided. The reagent in this case consists of an ammonio-magnesium mixture composed as follows: magnesium chloride, 5 grammes; ammonium chloride, 7 grammes; strong solution of ammonia, 35 grammes; and distilled water, 65 grammes. The phosphates are precipitated by this mixture in the form of the ammonio-magnesium variety. A table is provided with the instrument for calculating percentages.

Quantitative tests as simple and as effective as the foregoing exist also for the determination of indican and total acidity or alkalinity. Space forbids their detailed description here, but in their respective channels they may be made to figure usefully in a well-arranged scheme of accurate diagnosis.

Passing now from the subject of urine to that of gastric juice, we find that in this field also chemical industry has been active in providing the home worker with similar means of diagnosing conditions of complexity which baffle other sources of information. The modern

medical man is taught the importance of the role played by hydrochloric acid in gastric digestion, that its diminution or absence suggests one chain of thought, its hypersecretion another chain. Of what use is this knowledge to him in the absence of means of ascertaining what condition he is dealing with? In the present state of his resources it is only by prolonged observation accompanied by much empirical treatment with acids and alkalis that he may at length arrive at a rough estimate of the amount of hydrochloric acid present in the stomach of his patient. Wherein does the remedy lie? Clearly in submitting the gastric juice itself to chemical analysis whereby its acidity may be determined. Here, again, his outfit has been woefully lacking in provision for this important step towards a very large class of his *clientele*.

An instrument is now to be had whereby may be made three important quantitative tests; estimation of free hydrochloric acid, total acidity, and combined hydrochloric acid. These results are all obtained by the use of a graduated tube devised by GUNZBERG, and, together with a few physical tests very easily performed, give all the information which is required on the subject. The instrument, termed an "acidimeter," is a simple graduated tube, and in using it two reagents are required: (1) decinormal solution of sodium hydrate, and (2) an indicator consisting of phenolphthalein and dimethyl-amido-azobenzol (one grm. of each) and 70 per cent. alcohol 100 cubic centimetres. Gastric juice is obtained by means of a syphon tube after a test meal and filtered through ordinary filter paper. This is poured into the tube to a given mark and the addition of two drops of the indicator solution gives a bright cherry-red colour. The decinormal soda is now added drop by drop until the colour of the fluid has changed from red to a distinct canary-yellow. The level is then read off on a scale (marked red) which indicates without any calculation the percentage of free hydrochloric acid present. This being noted down, the test is continued with the same solution by dropping in more sodium hydrate until the fluid has become permanently red. The level as indicated by another scale (marked yellow) gives the total acidity. Should there be no free hydrochloric acid present, a dirty yellow colour will result on adding the indicator. To find the amount of combined hydrochloric acid, all that is necessary is to repeat the previous test, using as an indicator a one per cent. aqueous solution of sodium alizarin-sulphonic acid. The decinormal soda is added drop by drop as before until a deep violet colour appears. The yellow figures subtracted from the previously determined total acidity furnish the required result, for the total hydrochloric acid is equal to the sum of the free and combined acid.

Thus, it will be seen that information of the utmost importance from a diagnostic point of view may be gained in a comparatively short space of time and much experimental therapy done away with. Moreover, the assistance rendered by such instruments as these goes far towards placing the medicine of the general practitioner upon the same firm basis as that of the hospital or clinic to which too often he is compelled to refer his more complex cases.—*The Lancet*.

SURGERY.

Symptomatology and Treatment of Gonorrhœa.

The confusion still existing in the minds of so many as to the best measures to pursue in the routine treatment of acute gonorrhœa, constitutes the chief apology which the writer has to offer in presenting it as a subject for this editorial. The first problem confronting the physician undertaking the treatment of a case seen sufficiently early, is the possibility of aborting the attack. The hope that some safe and sure method of successfully aborting the disease might be attained has, up to the present time, never been realized.

The space allotted to this article will not allow of the writer's going at any length into a description of the more or less strenuous efforts that have been put forth in the past by the profession in the vain hope of accomplishing this object. None has proved absolutely reliable, and many have resulted in untold damage to the urethral mucous membrane. The various synthetic silver compounds placed before the profession in the last few years, seem to offer a reasonable chance of aborting the disease in cases seen early enough, but the attack is, as a rule, well under way by the time the physician first sees it.

Concerning the treatment of acute gonorrhœa, the writer frankly confesses that he has nothing new nor startling to offer.

At the outset, if ardor urinæ and chordee are troublesome symptoms, the patient is given some alkaline diuretic mixture containing fairly large doses of bromide of soda. As regards local treatment, directed to the destruction of the gonococcus, the following local treatment is advised:—

Two solutions are ordered—one containing potass. permang. 1:8000, the other a solution of some one of the silver salts. The patient is instructed to gently wash out the anterior urethra with an ordinary hand syringe full of the permanganate solution, repeating the process six

times. After so doing one syringeful of the silver solution is injected into the urethra and held in for ten minutes. This treatment should be employed three times daily for the first four days, at which time the strength of the permanganate solution should be increased to 1:4000. In the stationary stage of the disease—*i.e.*, about the end of the second week—the use of the permanganate solution can be discontinued, the patient being instructed to use the silver solution night and morning, and twice during the day one syringeful of the following:—

R Bismuth subcarb.	...	...	3ij.
Colorless hydrastis	...	...	3ss.
Boroglyceride,	...	...	3ii.
Aq. dest., q. s.	...	...	3iv.

In cases where the mucous discharge persists after four weeks, the use of the following formula, two or three times daily, will eventually bring about a cure in most cases:—

R Zinc sulph			
Pulverized alum, of each	...	gr. xij.	
Liq. hydrastis, colorless	...	3ss.	
Aq. dest., q. s.	...	3iv.	

Ordinarily in cases where there is little or no urinary frequency and only the two-glass test reveals the presence of a total urethritis, local treatment in the form of irrigations or deep instillations should be early employed. In nervous patients where the cut-off muscle fails to relax, or where the distention of the urethra produced by irrigation from the meatus causes considerable pain, it is much better to irrigate the deep urethra by means of a small caliber soft-rubber catheter. The most satisfactory line of treatment employed by the writer for some time consists in daily irrigations of the deep urethra with solutions of potass. permang. 1:6000, followed by instillations with a KEYS-ULTZMAN syringe of a silver solution, which should be held in the urethra as long as possible. This line of treatment should be employed every day if possible, until such time as the urinary frequency diminishes and the second portion of urine passed becomes clear. The use of hand injections by the patient should be discontinued temporarily during the period in which the posterior urethra is involved. This is a most important point and one very often overlooked. When the two-glass test shows that the posterior urethra is free from disease, any of the astringent hand injections mentioned above can be employed.

The above constitutes in brief an outline of the routine treatment pursued by the writer for some years past in cases of specific urethritis. No brilliant results have been obtained, the majority of cases requiring from six to eight weeks to accomplish a perfect cure, which, from the

writer's point of view may be considered fairly satisfactory.—H. M. CHRISTIAN.—*Monthly Cyclopædia and Medical Bulletin*.

The Management of Hernia.*

BY

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Etiology.—Hernia is twice as common in males as in females. It is found at all ages, but oftenest before thirty-five years. In about one-third of the cases there is a hereditary predisposition. Occupation also predisposes, especially muscular exertion undertaken when the thighs are flexed, as in lifting weights. It is in this position that the inguinal and femoral rings are most relaxed. Certain diseased conditions, such as chronic bronchitis, straining at stool, etc., are also contributory factors.

Clinically we adopt the following classification of herniæ: reducible, irreducible, incarcerated or obstructed, and strangulated.

The anatomical forms of hernia are inguinal, femoral, umbilical, ventral, obturator, lumbar, sciatic, perineal, pudendal and diaphragmatic. Only the first three will be discussed.

I. Inguinal.—This form may be direct or indirect. The indirect or oblique form may be congenital or acquired. The direct form is always acquired. In the congenital which is always indirect, the hernial contents descend along the cord, usually in front of it, into the scrotum, where they surround the testicle. The tunica vaginalis forms part of the sac of the hernia. As the internal ring is not dragged down, the inguinal canal does not become shortened, the neck of the sac remains long and narrow and there is thus greater difficulty in reducing the hernia and greater danger from strangulation. There is also greater danger of reduction "en masse," one of the important dangers of taxis, which will be referred to again below. Congenital hernia is often complicated by a retained testis. Such children should not wear a truss until they begin to run about. The infantile hernia is distinguished from the congenital by the fact that there is a septum between the peritoneal cavity above and the tunica vaginalis below.

Diagnosis of Inguinal Hernia.—This is usually easy. It must be differentiated from a femoral hernia, hydrocele of the cord or tunica vaginalis, retained testis and inguinal adenitis or lipoma.

* Read by invitation before the East Side Physician's Association.

2. *Femoral or Crural Hernia.*—This form is rare before the age of twenty, is much commoner in women than in men, and is never congenital. The sac is usually small, but when it increases in size it often extends forward and upward above Poupart's ligament. The differential point is that the femoral hernia always lies to the outer side of the spine of the pubis.

Diagnosis.—Differential diagnosis must be made from inguinal hernia, femoral adenitis and psoas abscess.

3. *Umbilical Hernia.*—It may be congenital or acquired. The infantile form of acquired umbilical hernia is very common. It is due to a yielding of the cicatrix after separation of the cord. The congenital form is rare. The acquired form in adults is commonest in obese women who have borne children. It may attain great size and usually contains omentum and part of the transverse colon. Such herniæ frequently become irreducible and strangulated. The infantile form rarely needs operative treatment—it can usually be cured by one of the many forms of truss or belt. The pad should not consist of a button, but should be large enough to overlap the hernial orifice by at least one-half inch all around. The treatment of reducible hernia is divided into palliative and radical.

A. *Palliative Treatment.*—This may be summed up into one word—truss. If the hernia be a small enterocoele it may be well and comfortably retained for many years by a properly fitting truss, preferably one with a water or glycerin pad. The larger the hernial ring the more difficult it will be to retain the hernia. Obesity also renders it more difficult. It is easier to retain an inguinal than a femoral hernia, but easiest of all to retain is the umbilical hernia. If the hernia cannot be completely reduced, a truss should not be worn. A congenital hernia is more amenable to truss treatment than an acquired one. The younger the subject the better the chance of a cure by the truss. The best results are obtained in infants and children; growth and development of their muscular system is an important factor in bringing about a cure. The truss consists of two parts, the pad which compresses the hernial opening and the spring or belt which holds the pad *in situ*. In many cases it will be necessary to have a double pad (even though the hernia be unilateral), as the single pad will often not remain well in place. The points of importance in a truss are that it should be light, firm and elastic, and it should comfortably retain the hernia in all positions of the body. If the pad does not sit well, if the spring is not strong enough, it will allow the hernia to slip out behind it. If the pressure is too firm it may cause

an enlargement of the hernial opening or cause an inflammation. The truss should be applied before rising in the morning and should be worn continuously all day. In some cases, as in chronic bronchitis, or where the patient arises regularly during the night, it may be well to order a light truss to be worn at night. A waterproof truss can be made to be worn when bathing. The pad may be made of wood, hard rubber, or preferably consist of a bag filled with water or glycerine and covered with silk or leather. The size of the pad will depend on the size of the hernial opening. It should overlap the opening by at least half an inch all around. The pressure should be exerted at a right angle to the plane of the hernial canal. The spring of the truss passes around the body just below the iliac crest. If it is on the crest, the abdominal muscles will displace it; if much below the crest, the gluteal muscles will disturb it. From time to time the spring will require adjustment, either for the comfort of the patient or to properly retain the hernia. To test the efficacy of the truss the patient should strain in such positions as will most relax the hernial opening.

If the hernia cannot be well controlled, or if in spite of the truss the hernia becomes larger, or if the patient refuses to wear the truss, then an operation is indicated. A patient should not be allowed to go about with a reducible hernia unless a truss is worn.

B. *Radical Treatment.*—The operative technic for the cure of inguinal, femoral, as well as umbilical hernia has been so much improved that we can now promise a cure in over 90 per cent. of our cases of reducible hernia. By using kangaroo tendon or chromicized catgut we can with impunity bury our deeper sutures without the risk of subsequent sinus formation. The use of silver wire and of silver wire filagree enables us to cure many otherwise improbable cases. The danger of infection in reducible hernia is almost *nil* and there should be no mortality. The old treatment of injecting an irritating fluid into the tissues about the neck of sac need be mentioned only to be condemned. The same applies to the injection of paraffin.

Irreducible Hernia.—This form is usually of long standing and often very large. The irreducibility may be due to the great bulk of the hernial contents, or to adhesions within the sac. Usually the hernia is partly reducible, while the remaining portion is bound down by adhesions. The longer a hernia is irreducible the more likely it is to cause pain, disturbances of digestion and to become incarcerated or strangulated.

Treatment.—As mentioned above, a truss should never be worn in such cases. A supporting bag, such as a suspensory, will give much

comfort. The bowels should be carefully regulated and exertion avoided. But such patients not only lead a very uncomfortable existence, but they also have a sword of Damocles continually hanging over them. At any moment the hernia may become strangulated and require immediate operation. An ocean voyage or a holiday far from civilization cannot be enjoyed with impunity. So that most of the cases, sooner or later, come to operation, and with our modern technic brilliant results are obtained.

Obstructed or Incarcerated Hernia.—This is most common in umbilical hernia and is usually due to constipation. The intestine within the hernial sac becomes obstructed by fecal matter and symptoms of intestinal obstruction result. We find it usually in herniæ containing large intestine and especially in those that are completely or partly irreducible. On examination we find a tense tumor, which, the patient will tell us, is larger and much more painful than usual. Pain is usually moderate and colicky in character. In some cases there is no pain in the hernia, but the patient complains of nausea and a dragging sensation in the umbilical or epigastric region. There is moderate distension of the abdomen, perhaps vomiting and more or less constipation. The symptoms differ from those of a strangulated hernia in that the patient is less sick, there is no shock, vomiting is not severe, the constipation is not complete, and the tumor not very tense.

Treatment.—Manipulation of the tumor does harm. The patient should be in bed, so placed as to relax the structures around the neck of the sac. An ice bag will be of use. An enema or rectal lavage will frequently give prompt relief. While the acute symptoms are present only water should be given by mouth. As soon as the acute symptoms subside a cathartic may be given.

Inflamed Hernia.—This condition is usually the result of an injury to an irreducible hernia, frequently femoral. The tumor becomes hot and painful; if it contains intestine considerable fluid will collect in the sac. In fact there is a local peritonitis within the sac. Vomiting and constipation are either absent or only slightly present. The symptoms are chiefly local and not very severe.

Treatment.—Rest in bed with a wet dressing or an ice bag over the inflamed area will usually cut short the inflammatory process. If an abscess forms it will require incision.

Strangulated Hernia.—In this, the most serious form of hernia, we have a condition that imminently threatens the life of the patient. There is (1) an obstruction to the passage of the gut back into the

abdomen; (2) an obstruction to the passage of the contents of the gut; (3) an obstruction to the passage of blood to and from the strangulated tissues. It is found more commonly in herniæ of long standing, especially during active adult life, is rare in childhood and in old age, but may be found in any variety of hernia at any time. Strangulation usually is due to the sudden descent into the sac of more than the usual amount of contents. Or it may be due to the swelling of the contents of the sac. In any case there is a compression of the hernial contents, usually at the neck of the sac. This compression causes a venous engorgement, which renders the parts still more swollen, and unless relief is promptly obtained strangulation soon results. The constriction is usually at the neck of the sac, but it may take place at any point within the sac as the result of adhesions. Strangulation is rare in omental herniæ, but common in intestinal herniæ. The loop of gut involved becomes oedematous from the venous congestion, its walls thickened, and deep red, later purple or brown, in color. Still later all circulation is arrested in the affected loop, the vessels become thrombosed and the gut gangrenous. In this stage the gut has lost its normal glistening appearance, its elasticity is gone and it does not contract when handled. There may be one or more perforations which took place spontaneously or as the result of taxis. The sac usually contains some bloody effusion and flakes of fibrin.

The symptoms of strangulation vary very much. We often find extensive strangulation without the patient even knowing that he had a hernia. The writer has operated on several such cases in which neither the patient nor the physician knew that there was a hernia present. Such patients, without any previous history referable to a hernia, will suddenly develop symptoms of intestinal obstruction. In these cases there is often no local pain to attract attention to a hernia, and the swelling is usually slight. They are frequently admitted to the hospital as cases of intestinal obstruction. In other cases there is pain at the seat of the sac at the outset of the strangulation; this pain may be mild or severe. The patient will sometimes volunteer the information that the rupture has increased in size, although this increase may be only slight. Handling of the sac is usually painful, the impulse on coughing is absent and there is often flatness or percussion, due to the accumulation of fluid within the sac. Signs of intestinal obstruction soon set in and nausea and vomiting, colicky abdominal pain and prostration; constipation, after the bowel below the point of strangulation has been emptied, is absolute. The vomiting is usually

frequent and persistent; in some cases, however, it is not a marked symptom and mistakes in diagnosis have occurred on account of its absence. As the attack progresses the abdominal pain increases, the patient is not able to retain any food, he loses strength rapidly, the eyes become sunken, the pulse is small and rapid, and the urine much diminished in amount. As in appendicitis, when gangrene sets in, the pain diminishes or ceases. Here also opium will mask the important symptoms and, by causing delay in operating, sacrifice life. Where only part of a knuckle of gut is involved (*Littre Hernia*) the lumen of the intestine is not completely occluded. The tumor may be so small as only to be found after careful examination. The symptoms may, at the start, not be so marked, as the intestinal obstruction is not complete; but if not relieved, gangrene of the gut will be just as certain to supervene; in fact the gangrene develops more rapidly than if a large loop of gut is strangulated.

The prognosis without relief is almost certainly fatal. Death may take place in from two to fourteen days. It follows then that treatment must be prompt. Every hour's delay adds to the gravity of the disease. The prognosis improves in an inverse ratio to the length of time the gut has been strangulated.

There are but two methods of treatment, taxis and operation. To practise taxis the patient should be in recumbent position. The muscles about the neck of the sac should be relaxed as much as possible. For an umbilical hernia the thighs should be flexed on the abdomen. For an inguinal or femoral hernia the thigh should be flexed and adducted. Raising the pelvis and lowering the shoulders will aid the manipulation. While the fingers of the right hand are exerting a gentle kneading and compressing of the hernial contents, the thumb and index finger of the left hand steady the neck of the sac. The amount of force to be applied should be slight and it should not be continued more than a few minutes. If the taxis is successful the gut can be felt to slip back suddenly and often with a distinct gurgle. The field of taxis in the old days was a very wide one. The fear of wound infection and peritonitis made the physician persist long and energetically before resorting to the knife. As our operative technic improved, the field of usefulness of taxis became more and more narrowed. Taxis should not be employed—

(1) in very acute cases where the symptoms have been rapidly progressive;

(2) in cases in which the hernia was previously irreducible;

(3) in cases of long standing, especially if taxis has already been attempted;

(4) in cases where gangrene of the gut or inflammation of the sac is suspected.

The dangers of taxis in any case of strangulated hernia are great, in many cases greater than the danger of operation. The great objection to taxis is that we are working in the dark. We do not know how badly strangulated the loop of gut is, and by exerting pressure with the hand we may cause a perforation of the gut. We may even succeed in reducing a strangulated loop only to find in twenty-four hours that the patient has a peritonitis from which he dies; or we may reduce the hernia en masse, *i. e.*, the entire sac with its contents is pushed back into the abdomen. If the seat of strangulation was at the neck of the sac, the symptoms will persist just as if no reduction had been effected. We have all seen lives lost by such unfortunate attempts at taxis—lives which could have been saved by prompt operation. So we have only too often at operation found gangrene of the gut undoubtedly caused by long continued taxis. And then it must not be forgotten that even if we are fortunate enough, in a few selected cases, to reduce the hernia, the patient is not cured. In a week or a month his life may again be endangered by the same condition. Here, again, we have an analogy to appendicitis. We may carry our patient through one or more acute attacks but the danger is ever present. One attack of strangulation, even if successfully overcome, should be a positive indication for operation.

The advantages of operation over taxis are:—

(1) None of the accidents attending taxis (mentioned above) is possible.

(2) The gut is inspected and is not returned into the abdomen unless it is viable—there is no danger of reducing perforated or gangrenous gut.

(3) A radical cure of the hernia can be done at the same sitting, thus preventing any future attacks of strangulation.

The details of the operative treatment will not be entered into. Suffice it to say that our results both as regards saving life and curing the hernia are continually improving. During the eight years ending December 1, 1906, 190 cases of strangulated hernia were operated upon at Mount Sinai Hospital with fifty-three deaths, a mortality of about 27.9 per cent. Many of these cases were brought to the hospital late in the disease, after several days of strangulation, and in many of the fatal cases intestinal resection had to be undertaken. In cases operated upon during the first twenty-four hours after the onset, the mortality was extremely

small; in fact the operative mortality will be found to go hand in hand with the number of hours that have elapsed since the onset of the strangulation. From this it will be seen that the presence of a strangulated hernia (which cannot be reduced by taxis), is an indication for immediate operation.

CONCLUSION.

(1) A hernia need rarely be operated on during the first few years of life, unless it cannot be controlled by a truss or, it becomes irreducible or strangulated.

(2) Taxis should be employed with the greatest care, not much force should be used, and it should not be persisted in for more than a few minutes.

(3) Operation is usually indicated in—

(a) a reducible hernia which cannot be well retained by a truss;

(b) an irreducible hernia;

(c) a hernia which has once become incarcerated or strangulated, even though it be successfully reduced by taxis;

(d) every strangulated hernia that cannot be reduced by taxis.

We do not claim that a patient cannot live safely with a hernia that can no longer be retained by a truss, or that an irreducible hernia requires immediate operation. But we do believe that in the long run the greatest good to the greatest number will be accomplished by adhering to the above conclusions. In support of these conclusions it must be borne in mind that we can, to-day, promise a complete cure to over 90 per cent of our non-strangulated cases. Furthermore, the operative mortality in these cases will be practically *nil*; whereas, the operative mortality in strangulated cases is at least 25 per cent. Further marked improvement in our operative technic is hardly to be expected. We can lower the mortality only by operating on more cases before the hernia becomes strangulated, and by operating at the earliest possible moment in the presence of strangulation.—*American Journal of Surgery*.

THERAPEUTICS.

The Use of Tobacco.

Tobacco is said by some to be a poison, but the late Professor CROFT, who was an inveterate smoker, used to tell his classes that he could assure them it was certainly a very slow poison. On the other hand, many tell us that tobacco when used in moderation is not a poison, but an

actual benefit to the human system. Nobody has been able to tell us in a definite or scientific way how smoking tobacco can produce beneficial results.

American Medicine, in editorial comment, tells us that the real use of tobacco has in some obscure way a sedative effect upon the nervous system, particularly the higher cerebral cells, but at the same time the effect of excessive indulgence causes the condition bordering on delirium. Mankind has instinctively found that it is comforting in some way which no one can describe, and (latter days) womankind is discovering the same effect.

We are told that an army deprived of tobacco is so inefficient that it may become demoralized and almost unfit for active service. Perhaps the most important fact from a medical standpoint is that the excessive use of tobacco is injurious, especially, so far as it effects the digestive and the nervous systems. We can, however, lay down no fixed rules of use to individuals. The amount of tobacco which produces solace and comfort and perhaps something more in a beneficial way will frequently produce well defined symptoms of poison in another individual, such conditions as the smoker's throat and smoker's heart, etc., are serious. The physician and patient should both realize these facts and act according to the dictates of common sense, and under such circumstances moderation or abstinence is desirable.—*The Canadian Practitioner and Review*.

Hydrotherapeutic Action.

Dr. CURRAN POPE, in *Advanced Therapeutics*, summarizes as follows:—

1. An ancient measure, universally found possessing cleansing, antiseptic, thermic, and mechanical powers.

2. Its physiological action upon the human body is largely brought about through its disturbing influences of temperature and mechanical effects on the peripheral sensory nerves.

3. Brief applications followed by reaction do not particularly affect temperature, though temperature reduction may be best brought about by immersion accompanied by friction.

4. The circulation is increased on the surface by heat, is accompanied by dilated blood-vessels, quickened heart action, and lowering of arterial tension. Cold contracts the surface blood-vessels, slows the heart's action, decreases the pulse rate, and raises arterial tension; is followed by reaction with moderately dilated blood-vessels.

5. Respirations are increased in number, lessened in depth and oxygen and CO_2 diminished by heat. Cold, on the contrary, increases the amplitude and depth as well as the absorption of oxygen and the elimination of CO_2 .

6. Metabolism in all its phases is affected by hydrotherapy, less in degree in the case of heat than with cold. As a tissue up-builder, tonic, stimulant, eliminant, depletive it is unequalled.

7. Upon the nervous system the direct action of water through its thermic and mechanical effects is conveyed to the center and there reflected in a thousand-fold way, producing results both tonic and sedative that make it a true nerve reconstructor.

8. Muscular tissue is relaxed and enervated by heat; stimulated, revived, and toned thirty-three and one-third per cent. by cold.

9. The blood is changed, leucocytosis induced, obsonic index raised, purification promoted, hæmoglobin increased, corpuscles enriched, and the alkalinity made greater by these applications.—*Medical Standard*, July, 1908.

Natural Mineral Waters.

THE reason why natural mineral waters are so frequently prescribed instead of ordinary saline mixtures such as are found in the Pharmacopœias of all our hospitals (under the names of *mistura alba*, *mistura magnesiæ sulph. et carb.*, etc.) cannot be quite satisfactorily determined. Probably it is largely a matter of sentiment on the part of the general public. Those who can afford it go abroad for a "cure"; those who cannot, like at least to feel that they are drinking of the same healing spring as their wealthier neighbours. It is, of course, possible that radio-activity or some such obscure factor may enhance the therapeutic value of the freshly drawn water of a mineral spring, but this would hardly influence the bottled and exported article. But on the whole the fancy is a harmless one, and if the general public prefer a mineral water to a prescription, it is quite certain that they will get it; the doctor should therefore see that the mineral water chosen is a genuine and efficacious remedy, that it is taken in the proper manner, and only by those to whom it is suited.

Hunyadi Janos contains in one pint about 140 grains each of the sulphates of magnesium and sodium, together with 12 grains of sodium chloride. Other estimates give a higher percentage of the two first constituents. It thus ranks among the more powerfully aperient salines, while the amount of magnesium sulphate gives it a characteristic bitter

taste. The ordinary dose—about four ounces—contains roughly 30 grains of each active constituent. The effect of the sodium chloride is mainly to mitigate the bitter taste of the sulphates.

The water should be taken with or without the addition of a small tumbler of hot water first thing on rising in the morning. Hot water aids the purgative action. Some patients find it more efficacious when sipped during the operation of dressing; others prefer to take it at a draught. In some cases it may be prescribed with twice as much Carlsbad water, made warm—i. e., one wineglassful of Hunyadi and two wineglassfuls of Carlsbad. The administration should be occasional, and should not be continued every morning for more than a fortnight. Usually the dose is ordered two or three times a week until the action of the bowels becomes regular.

In some cases it is necessary to prescribe a pill of aloin or a dose of cascara the evening before.

The main action is to prevent the absorption of water from the upper bowel, the contents of which remain fluid and bulky, and pass rapidly and easily into the lower portions of the intestine. The sulphates are hardly absorbed at all; the small amounts which pass into the blood stream probably have no further effect than to increase diuresis during their excretion by the kidneys.

Hunyadi Janos is not suited for continuous administration. It should be given occasionally, either to meet the needs of an occasional constipation, or in chronic cases when special indications arise. Thus, at the beginning of a course of treatment a week or so of Hunyadi Janos may be a useful adjunct to dietetic and other measures, or later on when the routine prescribed is not enough to maintain the daily action, it may be ordered two or three times a week till the condition is improved. The special conditions for which Hunyadi Janos is suited are chronic catarrhal inflammation of the bowels, and the gouty or "bilious" diatheses. The sulphates contained in the water do not irritate the mucous membrane, while acting very effectively in removing any excess of mucus; their diuretic action is an additional recommendation in gout. It has not been shown that they exercise any special influence on the liver, but they are certainly useful in the disorders popularly ascribed to that organ, mainly because they deplete the abdominal vessels, and relieve the passive hyperæmia of the splanchnic and portal systems, upon which probably much of the feeling of "fullness" and discomfort of certain dyspeptics depends. Hunyadi Janos is not suitable for anæmic patients, perhaps

owing to the altered osmotic conditions of the blood in that disease. Convalescents and those suffering from chronic ulceration of the bowels are also unfit subjects for this remedy. It has no action on gastric ulcers, and, in fact, its effect on the stomach altogether is practically *nil*. After a time a certain amount of habituation takes place, and this is one reason why it should not be employed continuously for more than a short time. The bitter taste of Huiyadi renders it an unsuitable aperient for children.—*The Hospital*.

The Treatment of Night Sweats: the External Application of Lysol.

F. VON GEBHARDT (*Pest. Med.-Chir. Presse*, June 28, p. 629).—Before resorting to internal remedies in the night sweats of phthisis external applications should be tried. All the efficacious internal remedies exert some undesirable by-effects. Atropine produces dryness of the throat and mouth and digestive and visual disturbances. Agaricine may produce severe digestive disorders with profuse diarrhoea. It should, therefore, be prescribed with opium or Dover's powder. Sodium tellurate is one of the most reliable antisudorifics, but it imparts an odour of garlic to the breath. Camphoric acid imparts an odour of camphor to the breath and produces eructations. Guacamphol ("REVIEW," 1907, p. 261) has a similar action. Less powerful than the above, but in certain cases giving good results, are saliva leaves. They are best administered as a 10 per cent. infusion with 20 minims of elix. acid. Halleri (strong sulphuric acid and alcohol; equal parts) and syrup of lemon.

External remedies include simple sponging with cold or tepid water, vinegar, and rubbing with brandy or Eau de Cologne. Dusting powders containing salicin, chloral hydrate, tannin, or tannoform are also recommended. The application of formalin and spirit is a good antisudorific measure but is contra-indicated, if—as usually happens—it irritates the respiratory passages and produces cough. By far the best external remedy is lysol diluted either with water or spirit, thus:—

Lysol 3	}	parts
Aq. destill 100		
or Lysol 3	}	parts
Alcohol abs.		
Aq. destill aa 50		

The whole body is rubbed with this lotion on an India-rubber sponge. If sweating is very profuse a tepid bath of soap and water is first given and the lysol is then rubbed in for 4 minutes, when the patient gets into bed

without being dried. By repeating this procedure every night for 5 nights the sweats may sometimes be suppressed for 2 or 3 weeks. In the experience of HEUER, who treated about 70 patients by the external application of lysol the method is most reliable. If the sweats return, a single application will often suppress them for some time. In order to avoid the smell of lysol, he employed an odourless variety called nizo-lysol, but of this the writer has no experience. Lysol is also an excellent application in non-tuberculous hyperidrosis, especially of the feet, axillæ, and palms. No symptoms of poisoning or unpleasant results after the external application have been observed.—*The Medical Review*.

Digitalis.

THIS valuable drug has been so much abused and condemned only by men who have become nihilist owing to the fact that they have not yet learned the first principles of medication. Too many expect immediate results by giving large doses. Others so combine with it a conglomeration of other vascular stimulants that digitalis cannot make known its effects upon the organism. Still others prescribe it at random and often give it in cases where it is absolutely contra-indicated. Digitalis is a powerful drug and valuable only in selected cases.

Locally it is rapidly absorbed by the skin and is said to have some sedative effect when used on spongiopilin or cataplasm. Internally, it has a bitter taste, but has no tonic action upon the stomach. Especially in large doses it disorders digestion, causes nausea, vomiting, and even diarrhoea when too long continued. It reduces the heart's action by lengthening the period of rest, or systole, thus allowing its cavities to receive more blood. At the same time that it increases the inhibition, it stimulates the motor ganglia and increases the force of the heart-muscle. Digitalis also assists in raising the arterial tension by causing contraction of the arterioles throughout the body. As a routine practice it is prescribed as a heart tonic in all cases of failure of circulation due to the feebleness of the heart's action. It should not be prescribed in valvular disease as long as compensating hypertrophy is keeping up the work of the heart; but when this fails and dilatation is commencing, digitalis will not only slow and steady the heart, but improve the nutrition of the heart-walls by increasing the pressure in the coronary arteries and allowing them a longer time in which to be filled. In mitral stenosis it is used in order to give the left auricle more time to empty its contents into the ventricle. In aortic stenosis it is contra-indicated, as a rule, except in

cases of arrhythmia or dropsy it may be employed with care for a short period.

Digitalis stimulates the pneumogastric and vasomotor nerves; also the vasomotor ganglia in the medulla. The brain and spinal cord are affected slightly.

There may, however, be headache, delirium, and vertigo, possibly from the disturbance of the cerebral circulation as a result of volatile oil, or from sick stomach produced by the drug. Large doses reduce the reflex action of the spinal cord and paralyze the peripheral nerves, both motor and sensory.

The increase of arterial tension in the glomeruli as a result of its general effect upon the circulation, plus some special action by which the renal arteries are dilated, bring about its diuretic properties, which become pronounced when the diseased condition is accompanied by oedema and low arterial tension.

As an antipyretic it is of little value. Its action is too slow and the disturbing effect digitalis has upon the stomach precludes its use in febrile conditions.

Digitalis lessens the contractility of the muscles, causing lassitude and want of vigor. In large doses it excites Setschenow's center, and produces muscular paralysis.

Another feature occasionally observed is that it depresses the venereal functions and also may cause an erythematous or papular eruption upon the skin, after the internal or external use of digitalis.

Cardiac dyspnoea or asthma, due to engorgement of the pulmonary circulation, is usually relieved by digitalis; and functional weakness, with irritable heart or low arterial tension, with migraine or delirium tremens, is very promptly benefited by it.

Digitalis is a useful remedy in hæmorrhages, as in menorrhagia or hæmoptysis, and is of particular advantage in the metrorrhagia or menorrhagia of plethoric individuals, or when dependent upon mitral disease. Postpartum hæmorrhage may likewise be restrained by the use of digitalis, which may advantageously be combined with ergot.

Among the chief contra-indications of the drug are: slow pulse, due to weakness of the heart wall; fatty degeneration of the heart, pericarditis, simple hypertrophy, compensating hypertrophy, high arterial tension, incompetent aorta, atheroma of the blood-vessels, and in tricuspid insufficiency it may indirectly cause pulmonary apoplexy, owing to sudden increase of pressure.

A word in regard to the preparations. The infusion is probably the most reliable, because it can be freshly made or the powdered leaves may also be used with success. The fluid extract and tincture are likewise valuable if not too old, and made from good leaves. The worst of all the preparations is an infusion made from the fluid extract, so often practised by unreliable pharmacists. In such an infusion all the active principles are precipitated by the water and rendered valueless. So many of the commercial, or isolated active principles of digitalis are made from the seed, and are inefficient and unreliable.

It is probably due to these agents that many physicians have lost faith in this drug. Preparations properly made from fresh leaves and administered frequently in small doses in indicated cases, success is sure to follow.—*Monthly Cyclopædia and Medical Bulletin*.

Local use of Magnesium Sulphate Solution in Inflammation.

TUKKER finds that local application of saturated solution relieves local pain, specially in gonorrhœal epididymitis and orchitis. It is applied on, from 15 to 20 thickness of ordinary gauze. This is kept saturated by removal every half hour at least, to prevent drying up. The gauze is removed after 24 hours and the part then washed with water and the dressing re-applied, if indicated.—*Therap. Gaz. Phil.* 1907.

OPHTHALMOLOGY.

Abstract of Clinical Lecture on "Trachoma."

BY

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THE above subject was chosen for the reason that though trachoma is frequently met with and recognized in its well-advanced stages, in its early stages, it is not infrequently passed over as an ordinary conjunctival catarrh or follicular conjunctivitis.

The name trachoma comes from the Greek, and means "rough," and the disease, as its name implies, is characterized by extreme roughness of the conjunctiva of the lids, which is also greatly hypertrophied.

This hypertrophy of the conjunctiva lining the lids gives rise, by its subsequent scarring and contraction, to the many deformities of the eyelids and misplacement of the lashes which are among the sequelæ of trachoma. It is also called granular conjunctivitis, granular lids, and Egyptian ophthalmia, and is a disease originating exclusively in infection

from patients already affected. It is only directly infective through the discharge from the conjunctiva, hence the more profuse the discharge the greater the risk of further infection. In Egypt the infection appears to be carried by flies from one to another, the flies clinging to the corners of the eyes of a trachomatous person, then flying to another, taking up the same position, and so infecting the eye. Flies, being sacred in Egypt, are not brushed away or interfered with by the native. Trachoma is a disease characterized by its extreme chronicity, and may continue throughout the whole of a patient's life or only for a few weeks. In its chronic form it is most destructive to vision, and brings about the more serious deformities in the eyelids.

DISTRIBUTION.

Trachoma is met with most frequently in barracks, workhouses, boarding schools, &c., where large numbers of people are crowded together and not under the best hygienic circumstances; in schools the infection is carried by direct contact or by the use of towels in common.

It has also a well-defined geographical distribution, being most frequent in Arabia and Egypt, which may be looked upon as its original home. In low-lying lands, such as Belgium, Holland, the region of the lower Danube and Hungary; also, it is much more frequent in Eastern Europe than in the West. High countries, such as Switzerland and the Tyrol, are almost free from it except for imported cases. Russian and Polish Jews are great sufferers, and, moreover, constant carriers of infection all over the world. The Chinese, Japanese, and native races of America suffer very considerably from it.

HISTORICAL.

Trachoma is supposed to have been brought over from Egypt by the men of Napoleon's army in 1798; most of the 32,000 men composing it were attacked by a violent conjunctivitis shortly after landing there; many of them were blinded by it, and the greater number only partly recovered, consequently bringing it back to Europe with them. It appears, however, to have existed in Europe in the time of Celsus, and scarification of the conjunctiva was largely employed for its relief.

During the period 1815 to 1839, it positively scourged the European armies. In 1818 in the English Army 5,000 men were partly blinded by it, and within this period 76,800 men in the Russian army were afflicted. In the Belgian army so many men had trachoma that the whole army was incapacitated, and the authorities, in despair, applied to a noted ophthalmologist, named Junken, then living in Berlin, to know what was the best method of dealing with it. He made the fatal mistake of advising that the

soldiers should all be sent to their homes, and in consequence it became more universally spread in Belgium than in any other European State. In 1819 the slaves on board a French slave-ship, named *Le Rôdeur*, were attacked by what appears to have been acute trachoma; subsequently the entire crew, with the exception of one man, became afflicted with it, and, in spite of various remedies being tried, were barely able to work the ship. Just when the ship was most helpless another ship—a Spanish one—fell in with them with her crew in as hopeless a condition from the same disease. The one sailor on the *Rôdeur* who brought the ship into safety was attacked by the disease three days after landing. Of the slaves and crew who were afflicted, some 70 or 80 per cent. were blinded, or partly so, for life, many of them, including the captain, losing one eye.

SYMPTOMS.

Swelling and heaviness of eyelids, ptosis, much redness and thickening of the conjunctiva, which becomes exceedingly rough, with some discharge which may become profuse, though usually not; still there is always constant discharge. Later, the cornea becomes affected by what looks like a thin skin, extending over it from above downwards, so-called "pannus"; occasionally corneal ulcers develop, usually in the upper part of the cornea. Later still, entropion or ectropion of the lids, with displacement of the lashes—"trichiasis." In many cases patients are quite unaware of the disease until the vision becomes affected by pannus spreading over the cornea opposite the pupil, and so blocking their direct vision. The essential change is hypertrophy of the conjunctiva, by which the folds of conjunctiva, where it is reflected from the globe to the lids, become much increased in extent and thickness and protrude greatly when the lids are everted. Over the tarsus, where the conjunctiva is firmly bound down to the tarsal cartilage, this thickening of the conjunctiva does not take place till late.

Two distinct forms of hypertrophy are met with: one the papillary form, in which the conjunctiva presents a velvety appearance, the other the granular, in which the conjunctiva becomes studded with true trachoma granules, much more noticeable than the papillæ and fewer in number.

In the first form the papillæ may be fine, like velvet or coarsely granular, or may present raspberry-like projections. The subjacent Meibomian glands are no longer visible.

In the second form—the granular—the swollen conjunctiva is studded over with grey, translucent, rounded granules, which have been likened to the eggs of frogspawn or boiled sago; these are found in greater numbers in the retrotarsal folds (the superior retrotarsal folds are shown

best by first everting the upper lid, then pressing the lid down behind the tarsus with the point of a glass rod; and here they attain their greatest size and fullest development. These same granules in the conjunctiva over the tarsus, where the conjunctiva is firmly bound down, at first appear as small, bright yellowish points only slightly raised, but later they become more protuberant and more spread out. This appearance of the everted tarsus studded with small, bright yellowish points is quite diagnostic of trachoma, even although the other symptoms of conjunctivitis may be quite slight. As a rule, both forms occur together; frequently the papillary form will later on develop granules. The conjunctiva of the globe rarely becomes affected, but, at times, the conjunctiva at the limbus develops a mass of trachomatous tissue just where pannus is commencing. The great hypertrophy of the conjunctiva in the fornices subsequently gives rise to scarring and contraction, which results in their obliteration, and in consequence the lids become more closely applied to the eyeball; hence, if the conjunctiva lining them is very rough, the cornea suffers considerably from friction.

PANNUS.

This is a deposit of newly formed gelatinous, vascular tissue at the limbus, which slowly descends over the cornea, usually over the part of the cornea covered by the upper lid. It becomes very vascular, the vessels running into it from the conjunctiva and branching in it in an arborescent manner. Sometimes it is quite slight—a mere film—but at others it is a fleshy-looking mass of considerable thickness. In either case, if it extends as far as the pupil, the vision will become greatly impaired. Ulcers of the cornea do not occur in it, but are frequently met with at its lower edge. Iritis occasionally occurs as an accompaniment of pannus, and is at times difficult to make out on account of the haze of the cornea. Pannus clears up when the hypertrophy and roughness of the conjunctiva become less.

SEQUELÆ OF TRACHOMA.

Deformities of the eyelids, such as entropion and ectropion, and displacement of eyelashes, both in direction and site of origin, are amongst the most frequent. Narrowing of the palpebral fissure and partial adherence of the lids to the globe—symblepharon—occur less frequently. Corneal nebulæ may occur as the result of ulcers in even the mildest of cases, much more so in the very chronic ones. A sequela—happily much rarer—is xerosis, of the conjunctiva and cornea, due to the glands which exist in the conjunctiva, and which secrete an oily substance, having been destroyed by the excessive hypertrophy of the conjunctiva. As a

result the conjunctiva becomes dry in patches, and to these patches neither the tears nor any other secretion will adhere. This finally extends to the whole cornea, which becomes lustreless, insensitive, dry and parchment-like, and, what is possibly the worst, torments the patient with an irritating sense of dryness which is quite intolerable. Such patients suffer from very defective vision and from night-blindness to a marked degree. This is in all probability the worst conceivable termination to a case of trachoma.

Entropion is caused by the scarring and subsequent contractions of the conjunctiva, which exaggerates the normal curvature of the lids. The tarsal cartilage itself participates in the inflammation and hypertrophy of the conjunctiva, and the subsequent contraction tends to bend it upon itself.

In this same manner trichiasis, the misplacement of the eyelashes, is brought about; the sharp posterior margin of the lid which fits closely to the globe, becomes rounded, and this brings the eyelashes closer to the globe, and later they turn right on to it.

Ectropion is caused by the excessive hypertrophy of the conjunctiva on the inner surface of the lid bending the margin outwards—literally crowding it outwards—the subsequent contraction accentuating this.

TREATMENT.

In the active stage local application of solid copper sulphate to the conjunctiva of lids and fornices, hydrarg. perchlor. lotion (1 in 3,000) used three times a day, and boracic ointment. Later, this ointment may be changed to citrate of copper ointment (cupricitrol). If the cornea is very hazy from nebulæ, as the result of ulceration, the ung. hyd. oxid. flav. should be used. Trichiasis may be dealt with merely by epilation, by electrolysis, or by the more radical method of excising the margin of the lid containing the eyelash follicles. Entropion and ectropion call for special operations for their relief; quite a moderate degree of ectropion will give rise to eversion of the lower punctum lachrymalis and cause lachrymation; the patient, in consequence, by continually wiping the eye in a downward direction, helps to increase the eversion of the lid margin, and makes matters worse.

When the swelling and roughness of the conjunctiva are very marked, expression should be resorted to. The eyelids first being everted, well cocaineized, and solid cocaine applied to the everted conjunctiva, the thickness of the everted lid is squeezed between the limbs of either Knapp's roller forceps or Graddy's semilunar forceps, the forceps meanwhile being drawn down to the everted margin, bursting the granules

and squeezing the fluid out of the œdematous conjunctiva. Afterwards a solution of perchloride of mercury in glycerine (1 in 500) is painted over the surface. This little operation should be performed many times if necessary, the ordinary treatment being continued in the intervals.

The cases shown included a slight case, chiefly of the papillary variety, but with several small granules in the fornices and over the upper tarsus; this had only affected one eye, though the disease had run for two or three years under treatment.

Another extensive case of the papillary and granular forms, with greatly hypertrophied fornices and well marked fleshy pannus, confined, however, to the upper part of the cornea, lower down were the nebulae left by healed ulcers. This case had continued some five years.

A case of the papillary form (which had probably presented many granules in its earlier stages) with thin but very vascular pannus all over the cornea. This had continued some eight years.

A case showing considerable scarring of the upper lid with trichiasis, some of the eyelash follicles appearing to have been dragged right back, so that the eyelashes arose from the posterior lip of the lid margin.

A case of extensive xerophthalmia, both eyes. In this case the cornea were quite insensitive to touch, parchment-like in appearance, and exceedingly dry; the patient suffered from night-blindness to a marked degree and never went beyond his own neighbourhood, with which he was quite familiar, at or after dusk.—*The Polyclinic*.

Ocular Complications of Pregnancy.

HIRAM WOODS (*Jr. A. M. A.* July 18) gives the following summary of his most interesting and instructive paper:

Apart from the various nervous symptoms incidental to pregnancy, which often affect the eye functions, there are four serious ocular manifestations seen more or less frequently during pregnancy or after parturition. These are: (1) The so-called uremic blindness, which is usually seen in connection with eclampsia. (2) What has always been termed the albuminuric retinitis of pregnancy. These are the most common complications. Rarer forms are (3) loss of central or peripheral vision, due, so far as symptoms point, to a retrobulbar neuritis, and (4), a form of neuroretinitis, not essentially suggestive of the albuminuric type, but showing numerous retinal exudates and hæmorrhages. The clinical symptoms of these conditions are reviewed, and the classes are studied from the standpoint of recent pathological investigations in the obstetrical field.

There is, in view of these investigations, doubt as to whether the term uremic should be applied to the blindness occurring in connection with puerperal eclampsia. The same is true regarding the renal origin of what is termed the albuminuric retinitis of pregnancy. There is good reason to think that both the renal and ocular complications are manifestations of the same process—a toxemia. The basis for this is set forth in the paper.

The third and fourth varieties of ocular complications of pregnancy are also, doubtless, the results of pregnancy toxemia, a toxic neuritis or toxic thrombosis probably being the active factor in causation.—*The American Journal of Ophthalmology*.

Transplantation of the Cornea.

The editor of the *Ophthalmic Review*, in the January number, 1907, gives an epitome of what must be regarded as by far the most successful case of keratoplasty hitherto recorded. A workman, aged 45, received extensive lime burns of both cornea. Sixteen months later ZIRM was able to transplant pieces of a healthy cornea from a boy aged 11, whose right eye was so injured as to necessitate excision. The technique was as follows: Immediately after enucleation the eye was placed in warm normal saline solution. The workman was anaesthetised, and a conjunctival bridge was dissected up below the right cornea. Then, by means of v. Hippel's trephine (probably about 5 mm. diameter and worked by a spring) a disc of cornea was removed from the enucleated eye, and an exactly similar disc was removed from the leucomatous cornea. The transparent disc was placed in the gap, and the bridge of conjunctiva was drawn over it by sutures. Another disc was removed from the enucleated eye, this time from the centre of the cornea, and placed in a corresponding trephine hole in the patient's left cornea. It was an exact fit, and was secured in the same way, with a conjunctival flap. The right eye was a failure, and had to be excised, but the graft in the left eye remained clear, and in six months the vision of the left eye was 3-20 and J. 13. ZIRM attributes the success to the fact that the graft was from a young and healthy cornea. It was floated into position with a minimum of handling, and the patient's cornea was superficially vascular. He suggests that in future cases he would "raw" the cornea all round the area to be trephined, and cover it with a bridge of conjunctiva dissected up from below and brought right across the future gap. This would provide vascularity right up to the graft, which would be inserted as soon as the irritation had subsided.

ARNOLD KNAPP adds one more to the lengthening list of undesirable results following the use of *Calmette's ophthalmic-reaction*. The patient was a girl aged 9, with serofulous superficial keratitis in the right eye of two months' duration. Otherwise she was healthy, and her family history good. Treatment was unsatisfactory, and an intractable ulcer formed on the lid margin. On December 14th, 1907, one drop of a 1 per cent. tuberculin solution was instilled in the left eye, which had never been affected. There was severe reaction in six hours, and the temperature rose to 100.4° F. Under treatment the swelling of the lids abated, but the conjunctiva remained red and thickened. Ten days later corneal infiltrations appeared, arranged in three groups near the margin. New blood-vessels and infiltration appeared in the superficial layers of the corneal stroma. By January 28th they had coalesced, and the infiltration had begun to spread over the centre of the cornea. The author concludes: "This is a typical tuberculous process in the cornea, and as it came on after the use of the tuberculin solution in a previously healthy eye, a connection seems very probable. This unfortunate case demonstrates that the ophthalmic-reaction cannot be regarded as harmless." The difficulty of convincing a patient (or perhaps a jury) that interstitial keratitis, occurring under such conditions, was due to a constitutional cause demands that great caution should be exercised in using the reaction. An abstract of SCHIELE'S work shows that a reaction is almost invariable in trachoma and follicular conjunctivitis. PARKES WEBER states that the solution placed in healthy eyes of healthy subjects produced a positive reaction if they read all the succeeding evening.—*The Bristol Medico-Chirurgical Journal*.

TOXICOLOGY.

Fatal Mistake in Dispensing

A case of accidental poisoning, due to careless dispensing of prescriptions, in which *Perchloride of Mercury* was used in place of *Chloral Hydrate*, was referred by the Civil Surgeon of Hazaribagh with the following history. The deceased had been suffering from fever for four or five days and had been under the treatment of the Assistant Surgeon, Sadar Dispensary, Hazaribagh. On the 8th August, the Assistant Surgeon attended him in the evening and prescribed for him a fever mixture, aperient pills, and two doses of a sleeping draught containing Potass. Bromide 10 grains and Chloral Hydrate 15 grains in each dose. One dose of the sleeping draught, which was dispensed at the Hazaribagh Druggists' Hall, was given at 9-30 P. M., immediately after which

the deceased had violent vomiting of blood-stained matter and complained of tightness in the throat. He was at once brought to the Hospital. On admission, his pulse was found extremely small and irregular; he was conscious; pupils equal and normal; complained of tightness of the throat; passed one solid stool at first and then watery and slimy stools in his clothing. Vomiting was persistent, with burning sensation in the gullet and stomach. The aperient pill, which had been ordered, had not been given. The temperature on admission was 103° F. The patient died at 6-45 P. M., on the 10th August. The Civil Surgeon, while attending the patient in the Hospital, remarked that *Corrosive Sublimate* might be present, as the taste of the medicine was not unlike that of Perchloride of Mercury, and the symptoms agreed except as regards fever. The clothes of the deceased bearing stains of faeces, the vomit of the deceased and about an ounce of the sleeping draught were forwarded for chemical analysis. *Mercury* was detected in the faecal matter and the vomit of the deceased; the sleeping draught contained 14 grains of *Perchloride of Mercury*; it contained Bromide of Potassium but no *Chloral Hydrate*. Phials containing Hydrate of Chloral and Bromide of Potassium found in the Dispensary and from which the sleeping draught was prepared were also forwarded for examination. These were found free from Corrosive Sublimate. Evidently Perchloride of Mercury was substituted for Chloral Hydrate in the sleeping draught through the carelessness of the dispenser.—(*Bengal Chemical Examiner's Report*, 1907).—*The Calcutta Medical Journal*.

PÆDIATRICS.

The Prognosis of Heart Disease in Children.*

BY

DOUGLAS STANLEY, M.D., Edin., M.R.C.P.

Senior Physician to Out-Patients, Queen's Hospital, and Physician to the Children's Hospital, Birmingham.

One of the most important problems that confront us in practice is the future of a child who has a mitral valvular lesion.

There are many factors on which this future depends, as, for example, the social position and the intelligence of the parents or guardians—in a word, the whole of the circumstances under which that child has to live and grow. But there are others which are less tangible, and which we cannot always estimate at the time—factors whose value can only be gauged in a number of years.

* Read at the Provincial Meeting held at the Children's Hospital, Birmingham, Saturday June the 20th, 1908.

I have watched the course and progress of many cases of heart lesion, especially mitral, in children for several years. The results have been for me very important and instructive. In some of these cases I was able to see the beginning of the process, that is, to have the patient under observation at the onset of the heart lesion—a point of the utmost importance obviously. In others it was the common story of finding a valve defect, already established in a child brought on on account of debility or any of the various symptoms that indicate heart lesion in children, and where we have less chance of doing good than in the former group of cases.

The following case, the boy MARTIN, aged 11 years, whom you have seen, is an interesting example. Nearly two years ago he was brought to me at hospital on account of heart pain; he appeared very ill. I found loud pericardial friction, and at once took him in. A large effusion rapidly appeared—so large that I had to tap, as the boy showed all the worst indications of cardiac compression. He made an uninterrupted recovery. No lesion could be detected afterwards. He came in about a year later with acute rheumatic symptoms. This time a soft systolic murmur could be heard, and the general cardiac signs made me fear that considerable damage might result. The boy was kept absolutely at rest for two months. Since then he has been very carefully looked after. He has been very little to school and all violent exercise has been forbidden. As you saw him to-day, he looks a bright and active boy. The heart condition is very satisfactory. The impulse is in the fifth space, half an inch inside the mid-clavicular line. The mitral first sound is a little fluffy, there being what can hardly be called a murmur, and what there is, is soon lost outside the mitral area. The second is accentuated and reduplicated. The tricuspid and aortic sounds are good average quality. The pulse is regular and of good size. No veins pulsate in the neck.

This boy is, as I said, very carefully looked after, and for some years to come this supervision will be continued, for fortunately his mother is an intelligent woman, who is willing to do as advised. Given freedom from further rheumatic infection and any other serious illness, this boy should, and I believe will, so considerably improve as he grows that possibly his heart may show little, if anything, of past lesions.

A boy, the son of a doctor, was brought to me about six years ago because his father discovered a mitral murmur. The patient was not a full term child, and had a delicate babyhood. When about six years old he ailed for a time, though there was nothing very definite or suggestive of acute rheumatism. I found he had mitral incompetence, there being a

well-marked musical systolic murmur with accentuation and reduplication of the pulmonary second.

There was in addition to the drawback of a not robust constitution the question of school in the immediate future. My advice was to get the child to grow and strengthen as much as possible; when sent to school, it should be to some place where he would be looked after and not allowed to overtax his strength. As far as possible there was to be a period of daily rest on his back. This plan was followed for several years. He grew and strengthened, and though now not a strong-looking boy, he is not in appearance much below the average. Quite recently—that is, nearly seven years after my first examination—I was asked to see him again to decide the question of greater latitude in school games. The cardiac condition had entirely altered. The heart's action was regular, the mitral first sound was well marked, and I was very doubtful if anything suggesting a murmur could be heard. Yet in this case a well-marked musical systolic was present for a considerable period—over two years.

The child OSBORNE, aged 11 years, whom you saw at the Birmingham General Hospital this afternoon, was under my care in hospital on account of well-marked mitral regurgitation, the result of acute rheumatism. I am told that a doctor who treated her at home said she had pericardial effusion. I first saw her about three years ago. She has grown since then. To-day her cardiac impulse is practically in the mid-clavicular line. The mitral first sound is loud and vibrating, accompanied by a slight systolic murmur, which is not heard outside the mitral area; it is somewhat increased by quick movements. The pulmonary second sound is reduplicated and accentuated. The pulse, though of fair volume, is not always regular. This patient has shown so much improvement that I hope there may be still more, and that as she grows there may be corresponding change in the condition of the heart.

I think we are inclined to make up our minds concerning the future at too early a period in the history of heart lesions in children. Certain I am, from watching some of these cases for a number of years, that great improvement may, and does, take place. I believe that, when the lesion is mitral, that if circumstances are favourable—that is, social surroundings and the parents able and willing to follow directions for a long period, without forgetting the past—the heart participates in the general growth of the child and leaves much of its past behind it. If, however, the lesion be a severe one with much valvular deformity, if there be excessive hypertrophy, especially if there be any pericardial adhesion, or, I may say, if there be reason to suspect pericardial adhesion, the outlook is bad. For instance, I had a little girl in Queen's Hospital some months

ago for well-marked mitral disease with double murmur and considerable dilatation. In a sense she did very well, and left the hospital comparatively comfortable, there being fair compensation. But here I hope for little. The child looks badly; from her slightly "mitral" appearance—I can hardly call it cyanotic—it is evident that her vascular system is embarrassed. She is not, I think, growing, although she has put on some weight. Physical examination shows pronounced hypertrophy of the heart, and a marked systolic mitral murmur. It is difficult to say exactly what we mean by a severe mitral lesion, but when I find that the murmur varies under observation, especially if a shifting diastolic be present as well as a systolic, I regard the lesion as severe. In the case just quoted these points are noticed.

I have referred to the question of growth. If a child with cardiac valvular disease grows, we may say there is a better chance for the heart than if he remains undersized and puny. I do not think this has been sufficiently emphasised. We are often asked the question by parents: "Will he grow out of it?" I think we may in some cases of valvular disease say it is possible. It comes to this, and here is my point: that if we can so order a child's life for a period of years, which must extend past puberty into adolescence, if not manhood and womanhood, that everything will conduce to steady growth without strain on the cardiovascular system; if, with luck, there be no further damage from infections, we may hope for disappearance of a valvular lesion. The period of puberty requires particular attention, and it is just at this time, in deference to what we call civilisation, that the strain of education is greatest. It is then that there should be the greatest care, and a period of daily rest on the back to compensate for rapid growth and the great cardio-vascular changes.

It is most interesting to watch these cases during such a crisis. About ten years ago I saw a child with undoubted mitral disease. Though the history of actual acute rheumatism was doubtful, there had been bad attacks of tonsillitis. I gave a bad prognosis. I saw her at intervals for some years. When about sixteen she was a fairly well-grown girl, and no lesion could be found in the heart. It was suggested when I showed her at one of the Medical Societies that the lesion was what is called functional, because it had disappeared. All I can say is that if it were, then many cases of valvular lesion with marked confirmatory signs are functional, a position I am now less inclined to accept, in view of many other cases I have watched.—*The British Journal of Children's Diseases.*

Cases and Comments.

Pregnancy with Cicatricial Contraction and Occlusion of Vaginal Orifice in Advanced Age of 40.

BY

V. P. KRISHNA MENON.

Civil Hospital Assistant, in Medical charge of L. J. Dispensary, Thamarachery, Malabar.

On 22nd September 1908, I was called to attend to a case of labour in a primi-para aged about 40 years said to be in pains for three days, 2nd stage being in progress without effect for about 38 hours.

The patient had feeble pains when seen: her pulse was 70 per minute, full and compressible, and her general condition was encouraging. On examination it was found, the vaginal area was one smooth surface with black spots here and there, resembling black hairs and with a small circular opening admitting with difficulty the end of male elastic catheter No. 8.

This opening was very low, and urine and menstrual discharge (which were reported to be regular) were said to be finding their way out through it with difficulty. Bladder was distended, to relieve which catheter could not be passed through the opening, urethral opening being higher up the hole outside and meatus urinaria being pently adherent to the skin and labia. The vaginal and perineal area were not markedly bulging out as one might expect in a case of the nature, although the head of the child was distinctly felt through the opening. A few loops of black hair were found hanging out through the hole, probably washed out in draining the Liqr. Amnii.

Previous History.—About 20 years ago the patient had suffered from (Primary) sores, ulcerated condition lasting for months together. These ulcers healed, gluing together the labia and occluding the vaginal opening, leaving but a small hole described above.

Operation under Chloroform.—A medium incision, about 3 inches long, was made in place of vaginal orifice which was further extended in the rectal end to either side to about $\frac{3}{4}$ inch with a view to create more room for manipulation and guard further injury to the perineum. Bleeding was but slight and could be controlled by firm pressure.

Urine was now drawn off. A dark red tenacious fluid about 2 to 3 oz. escaped from the vagina which appeared to be residue of Liqr. Amnii. Adhesions were, as far as possible, separated by fingers. The head was on the floor of the vagina. No pulsation in fontanelles. An attempt was made to deliver by forceps and it was found that this could not be done without serious risk to the mother. The bones of the head were very hard and caput succidanum was little formed. The parturient canal higher up the vagina was pretty normal. Delivery was completed by cephalotripsy. Beyond a slight rise in temperature and discomfort from operated surface there were no other complaints to disturb the rest of the puerperium.

THE ANTISEPTIC.

NOVEMBER, 1908.

Allopathic or Ayurvedic?



THE only element in the present complicated condition of India's transition, commonly called "unrest," with which we are immediately concerned, is the demand made in many quarters for the encouragement and development of the Indian system of Medical Science. The demand is natural, but, as in the field of economics, so in the case of medicine, there is more enthusiasm than knowledge at the back of the would be reformers. What it is that the advocates of the revival of the Hindu system of Medicine want is not very clear to us. The beginning of the medical system of any country is practically the same. Experience and observation guide the professors of the healing art to find out that certain altered conditions of the human body are corrected by the exhibition of certain medical preparations. And the drugs favoured by the earlier physicians in all countries were mostly derived from the vegetable kingdom. In this way, by purely empirical methods, physicians came to associate certain drugs with the treatment of certain symptoms. The different symptoms which were generally to be found associated together were also studied and grouped together, and when a certain group of symptoms were seen to show themselves, the presence of a certain disease was diagnosed.

An unscientific and vague system of symptomatology and an empirical and crude system of therapeutics were practically all that constituted the earlier systems of medicine alike of the East and of the West. The Indian system of medicine got to that stage, and, owing to circumstances over which the physicians had no control, stopped there. Although the evolutionary progress of Indian medicine stopped centuries ago, it is an undoubted fact that its symptomatology displays shrewd observation and acute reasoning, and it has also pressed into its service some of the most powerful drugs which have ever been used in the treatment of disease. At that stage too the Eastern Medical science was far in advance of its Western contemporary. Medicine is not an exact science, and never will be,

because all the factors in the solution of every problem will never be known. For a long number of years the progress of medical science in the West, at least in its practical aspect, was a continuous journey from one empiricism to another. Within the memory of living man medicine was rescued from the regions of this empiricism by the timely intervention of Pathology. The progress of medical science in the West during the last half century has been astonishingly rapid. And yet with all our improved knowledge of Anatomy and Physiology and Pathology, is there any medical man who does not realise that even now we are a long way from the solution of all the mysteries connected with that complex phenomenon—disease? If that is the position of the medical science of the West which has been steadily continuing its onward progress during all the centuries when foreign invasions and political changes made any progress in the Hindu medical system almost impossible, what must be the condition of the Indian medical system? In what way are we to improve it? Are we to give it a new Anatomy, a new Physiology and a new Pathology? And if these three are to be borrowed from the West and added on to the system of the East, will there be anything left in the resulting mixture to indicate its Eastern ancestry? Will not the symptomatology of the Eastern system have to be almost entirely modified and altered if it is to enter into partnership with the Pathology of VIRCHOW to form the new Medical system of the East? And if it is not to be so modified, is a new system of Pathology to be created? These are questions which evidently have not attracted the attention of those who want to develop the Hindu medical system. They seem to concentrate their attention mainly on the use of Indian drugs—drugs which have been used by the followers of the Indian medical system. Here again it is not quite clear as to whether we are to use the Indian drugs in exactly the form in which it is recommended in ancient medical works, or whether the reformers will be satisfied if we use modern preparations of those drugs. European medicine has adopted a good many of the Indian drugs, such as opium, belladonna, aconite, and so on. And as time goes on, more and more drugs will be taken into use from all parts of the world. But no one would advocate the use of these powerful drugs in the form of the crude preparations which are used by the Indian *Vydia*s. Even our pharmacopœia preparations of vegetable drugs, such as tinctures, infusions, extracts, &c., are objectionable, and their use is unscientific because they are uncertain and variable in their composition, strength and results, and their dosage is unreliable and misleading. Speaking on this subject DR. GEO. ACHESON said before the Ontario Medical Association:—

"They are not of uniform strength, because (1) the plants from which they are derived do not contain the active principles in uniform proportion; these vary as do the conditions of temperature, moisture, sunshine, soil, locality; season, etc., in which the plant grows or the specimens are gathered; (2) the age of the crude drug; (3) the varying methods employed for extraction; (4) the constant changes going on in the preparation after being placed on the market—change due to decomposition, evaporation of menstruum, or of volatile active principle. Specimens of belladonna vary in their alkaloidal content from 1 to 50; opium varies in its morphine content from 2 to 18 per cent. Again, most plants contain more than one active principle, the physiological effects of which are frequently diametrically opposite. From opium some 26 different active principles have been isolated, no two of which produce the same effect; at one end of the series we have morphine, purely sedative, and at the other thebaine, a powerful stimulant. Digitalis contains five glucosides, one of which is possibly inert, three others have in varying degrees the well-known effects of the one most commonly used, digitalin, a tonic to the heart, a contractor of the muscular coat of the arteries, and a diuretic; while the fifth, digitonin, is a direct antagonist of the others, being a cardiac sedative and relaxor of the arteries. The quantity and proportion in which these are found in different samples of digitalis leaves vary considerably, and therefore, the actual strength and composition of infusions and tinctures prepared from different samples of the drug will vary. So that from one preparation we may get a heart- tonic effect and from another that of a heart sedative. Digitalin gives us the maximum of heart- tonic effect with a minimum of vascular contraction, while digitoxin is a very powerful vascular contractor; digitonin, on the other hand, being a cardiac and vascular sedative. Hyoscyamus contains two active principles—hyoscyamine, which is a cerebral stimulant and deliriant, and hyoscine, a cerebral sedative and narcotic. Ipecac has two active principles, emetine—an expectorant, and cephæline—an emetic and irritant; and Carthagenia ipecac is always richer in cephæline than Rio ipecac. Jaborandi contains 6 alkaloids, the principal one pilocarpine, which is a powerful stimulant of the sudoriparous, salivary, and mammary glands. But sometimes the alkaloid jaborine will predominate, which has an entirely opposite effect. Nuxvomica contains strychnine and brucine. Cinchona bark, who shall say how many, though we have practically discarded all now except quinine. And so I might go on to enumerate most of the vegetable materia medica to prove the unreliability, uncertainty, and want of uniformity of their galenical preparations. The chemist, pharmacist, and physiologist, however, have been at work, and have supplied us with many uniformly-acting agents, and plenty of data concerning their actions, which constitute real scientific knowledge. I refer to the various definite chemical compounds, alkaloids, and active principles of drugs, a large number of which is now well known and has been thoroughly studied. What is required is, that this knowledge should be applied in the ordinary practice of the profession."

From the foregoing it is manifest that crude preparations of powerful vegetable drugs are unsafe to use. How then are we to adopt the decoctions and powders of the Hindu Pharmacopœia? We are constantly being told of instances where Ayurvedic practitioners have succeeded after practitioners of the European medical system have failed. No satisfactory inference can be drawn from these isolated cases. More valuable lessons can be learned from one's failures than from the few brilliant successes that may be picked out. Probably there are no substances incapable of producing some perturbation in the physiological conditions of the body, and thus of modifying some of the conditions of disease. And therefore, a decoction containing something like 40 or 50 drugs is bound to produce considerable change in the physiological conditions of the body, which may be beneficial or harmful. The treatments of diseases by drugs cannot be conducted on a system of lottery. It must be based on accurate knowledge and reliable certainty. The system of putting in a number of drugs in a mixture or pill in the hope of some one or other taking effect, and which Professor SIR THOMAS FRASER once called "polypharmacy," is now generally recognised as unsound and unscientific. We ought to know definitely what an agent will do under certain conditions, and we ought to know exactly what the altered conditions are which we are called upon to correct. And the way to accomplish these ends lies through Pathology and Pharmacology, both of which are comparatively new sciences. To select a number of Indian drugs and to study carefully their pharmacological action first and then their therapeutic uses would be an eminently praiseworthy and highly useful course to pursue. But to accept the invitation so generally offered to medical men in India to combine the Ayurvedic or Unani systems with the European system of medical treatment is the easiest way to get into a hopeless mess. That way empiricism lies, and all the time we ought to be doing our utmost to get away from empiricism. Empiricism in medicine is like shallowness in politics—absolutely ruinous.

CORRESPONDENCE.

Pay of the Hospital Assistants Then and Now.

SIR,

It will be observed at a glance over the figures given below that great is the improvement between the old and new scale of pay among the several class of Medical Officers in India, but what is given to the Civil Hospital Assistants is practically less than what they had been getting before the reorganization:—

I. Pay of the I.M.S.

	OLD. Rs.		NEW. Rs.
Surgeon-Major.	{ 888 12 6 852 3 7 677 6 11	Lt. Col., I. M. S.	{ 1450 0 0 1350 0 0 1250 0 0 1050 0 0
Surgeon.	{ 640 14 6 410 9 6 392 5 2	Major, I. M. S.	{ 900 0 0 850 0 0 750 0 0 700 0 0
Assistant Surgeon.	{ 304 12 2 286 10 6	Capt., I. M. S.	{ 650 0 0 600 0 0 550 0 0
		Lt., I. M. S.	550 0 0

II. Pay of Military Assistant Surgeon.

OLD.	Rs.	NEW.	Rs.
Senior Apothecary 1st	400	Uncovenanted Civil Surgeon	350 to 700.
Do. 2nd	300	Senior Assistant Surgeon	400
Apothecary 1st	200	Do.	300
Do. 2nd	150	Assistant Surgeon 1st	200
Assistant Apothecary 1st	110	Do. 2nd	150
Do. 2nd	85	Do. 3rd	110
Sub-Assistant Apothecary	50	Assistant Surgeon 4th	85
		(Abolished.)	

III. Civil Assistant Surgeon.

OLD.	Rs.	NEW.	Rs.
Sub-Assistant Surgeon 1st	200	Civil Surgeon	350 to 500
Do. Do.	150	Senior Assistant Surgeon	300
Do. Do.	100	Assistant Surgeon 1st	200
		Do. 2nd	150
		Do. 3rd	100

IV. Civil Apothecary.

This class was created in 1874 and was abolished in 1884. The educational qualification, when the scale of pay was fixed, was not the Matriculation but a test equal to the Middle School Standard, and the College course was only 3 years. The pay scale then sanctioned to this Class was Rs. 60, 75, 100, 125, 150, and a Charge Allowance of Rs. 50. Now the Hospital Assistants are Matriculates and undergo a full course of 4 years in the Medical Science.

V. Pay of Hospital Assistant.

A. Military.	OLD.	NEW.	B. Civil.	OLD.	NEW.
	100	80		70	55
	60	40		55	45
	40	25		45	35
	25			35	25

Recently the benign Government has sanctioned the following scale of pay to the sister service of Veterinary Assistant whose course of training is three years.

SERVICE.	PAY.
<i>Veterinary Inspector.</i>	
21—25	Rs. 100—4—120
16—20	85—3—100
<i>Veterinary Assistants.</i>	
11—15	75—2—85
6—10	50—5—75
1—5	30—4—50

The I. M. S. Officers and Editors of English and Indian Medical Journals have often expressed that the Hospital Assistants are certainly under-paid and not treated well and their grievances are real and aspirations legitimate.

I appeal to all who are in a position to help the Hospital Assistants Class to recommend to our benign Government to remove their long felt grievances soon and make them contented and grateful.

“FAIR PLAY.”

The Use of Quinine in Pregnancy.

SIR,

In the *Indian Medical Gazette* of July 1907 (page 271) a Civil Surgeon writes asking for experiences of others on the practical question of the use of quinine in cases of malarial fever occurring in pregnant women. So far we have seen no reply, which is a point on which many of us must have had experience. I here quote a para from Dr. Moore's book of Family Medicine for India, Seventh Edition, which may be of interest as regards the action of quinine on the pregnant uterus:—

“Quinine will sometimes act on the womb, so that it should be given with caution to pregnant women; and not at all if there is any peculiar susceptibility to the influence of quinine.”

In the plains of India old and young people, barren or pregnant women, nursing mothers, the unborn offspring, weakly infants or sturdy children, nearly all become affected by malaria; and though removal to a hill climate gradually expels the invisible exhalation, the relief may not be permanent; when such insidious attacks tell with increased severity on liver, spleen and constitution generally, although the fertility of women does not appear checked, the fact was proved by the investigations of the late Dr. H. C. Cutcliff, that men saturated with malaria frequently had childless homes. Apart from the supposed ill-effects resulting from the action of quinine on the pregnant uterus, most authorities agree that in the treatment of malarial fever quinine in solution appears more efficacious than in pill, and small repeated doses more beneficial than occasional large doses, which may affect the head to an extent not always realised at the time. Will some of our professional readers that have been in Maternity Hospitals kindly give us their views on this practical point relating to the use of quinine in utero-gestation?

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Original Articles.

THE MODERN TREATMENT OF RINGWORM.

BY

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[Continued from p. 689, Vol. V, *The Antiseptic*.]

PART III.



In late years, the X-rays have been recommended in very many varieties of disease, both cutaneous and otherwise, but probably in none with such marked success as in the parasitic affections of the scalp and beard.

Previous to their introduction and to the admirable work of *Sabourand*, often many months, and even years, would pass under the old method of treatment, during which all kinds of remedies would be adopted without their having the least effect on the duration of the disease.

When one considers the serious influence on the race caused by the lack of education due to the enforced absence from school of those suffering from the disease, and that this absence has become now a matter of a few weeks instead of months or years, the importance of *Sabourand's* discovery is immediately rendered manifest.

Some few years ago, this same author made a microscopical study of these parasitic diseases, and it is to him we owe the differentiation of the various forms of ringworm. He classified them according to the fungus causing them as follows:—

- (1) *Microsporon Andoninii* (small spored fungus).
- (2) *The Tricophyton* (large spored fungus).

* Specially contributed to *The Antiseptic*.

- (a) *Tricophyton megalosporon endothrix*.
- (b) *Tricophyton megalosporon ectothrix*.
- (c) *Tricophyton megalosporon ecto endothrix*.

(3) Favus.

(1) The *microsporon andoninii* usually affects the hair of the scalp, but occasionally other parts of the body. If affecting the scalp, it produces a patch or patches usually covered with a scurfy-looking material of a greyish colour, projecting through which are groups of broken hairs. The margin of the patches is well defined, and around it are often found a ring or rings of definite papules.

If the diagnosis is in doubt, it can easily be made certain by microscopical examination of the broken hairs in a drop of liquor potassæ. The hairs, when removed, have a peculiar white sheath, which on the microscopical examination is seen to consist of layers of spores. These spores are arranged close together, and in stained specimens, curved rods, forming a mycelium, can be found inside the hairs. The *microsporon* is essentially a disease of early life, and is seldom seen in the adult or after the age of 16. From 10-16 also the liability to infection tends to diminish. After infection the disease spreads slowly, and has been known to last as long as 7 or 8 years.

(2) The *Tricophytoms*, though occasionally affecting the scalp, are the chief forms of fungi affecting other portions of the body.

If affecting the scalp, the hairs break off level with the scalp, giving the appearance of black spots, the so-called "*black spot*" ringworm. There is *no* white sheath attached to the hair root.

Microscopically the fungus consists of a mycelium in the form of jointed rods, and the spores, arranged in chains, are much larger than those found in the *microsporon*.

The *Tricophyton* fungi are of three varieties, according to whether the spores are in the interior of the hair, exterior to the hair, or in a few cases affecting both the inside and outside of the hair.

The cultures produced by these varieties are tinted yellow or reddish brown, whereas the *microsporon* culture is a white-ringed culture. It is these forms which set up the intense inflammation, sometimes seen in ringworm, with the formation of pustules of the skin, and more especially the hair follicles, and also the forms which have no limitation of age regarding those whom they attack.

The endothrix fungus is undoubtedly conveyed directly from one patient to another, and also by infected articles (*e. g.*, shaving brushes,



FIG. 1.
Showing Epilation.



FIG. 2.
Showing Epilation in a case of Favus 25 days after treatment by the X-rays.



FIG. 3.
Showing re-growth of hair (generally curly)
3 months after Epilation by the X rays for Ringworm.

towels, razors, etc.) whereas the ectothrix almost always originates from horses, cats, dogs or cattle, and is the form which is not only generally the one attacking the nails, but also the one which is the most resistant to treatment.

(3) *Favus*.—This disease is not uncommonly found in the poorer parts of large ports. In London it is more often found in the Polish Immigrants, and if ever occurring in English children, these latter are almost invariably found to be attending the school, where the children of the former suffering from the disease are attending.

The fungus attacks the hair and the scalp itself. The spots first seen are usually circular in shape, covered with crusts, yellowish sulphur-like in colour and cupped on the surface, having a peculiar odour often described as "mousey." If the crusts are removed, a raw surface is left, and microscopically the fungus will be seen to be made up of a mycelium of branching rods with great numbers of rather large spores. It is a disease of childhood, but may persist to adult life, and after a certain period leaves scar tissue, with permanent atrophy and destruction of the hair follicles. In a case of long standing the appearance of every bald patch is of a white shiny nature, which on a closer inspection will be found to be cicatricial tissue, the hair follicles being entirely destroyed.

Regarding the treatment of ringworm of the non-hairy portions of the body, much need not be said. Most of the strong antiparasitic compounds, especially those of mercury, are generally sufficient to cure the disease. The parts affected should be well washed with soft soap and warm water, night and morning, and the Ammoniated Mercury ointment well rubbed in, special care being taken to rub the ointment in the margins of the patch in order to prevent the spread of the disease.

Any blistering substance (*e. g.*, Sol. Iodi. Fort.) will, by removing the infected epidermis, affect a cure. In treating the disease affecting the nails, the only satisfactory treatment is the thorough removal of the nail, the scraping of the matrix with a small Volkmann Spoon, and then the constant application of the Ammoniated Mercury ointment.

The nails are best removed under a general anæsthetic, and before the preliminary dressings are applied, the surface of the matrix should be painted with pure Carbolic Acid.

But the greatest difficulty has always been in the treatment of the disease when affecting the scalp, owing to the affection of the hair follicles themselves, and that unless the hairs be entirely got rid of over the whole area affected, reinfection is continuously being set up.

Consequently, the only way to effect this is the removal of the infected hairs, and, as soon as this is accomplished, the matter simply resolves itself into similar treatment of ringworm of the non-hairy parts of the body.

Epilation of the hairs singly by epilation forceps is extremely tedious and painful, and it is impossible to get rid of every hair by this means.

The old method of setting up inflammation by means of Croton Oil is sometimes useful, but the new method of epilation by the X-rays is not only an absolute cure in every case, but produces this result in a minimum of time, and without any pain. In the early stages of this method of treatment, the chief difficulty lay in the estimation of the dose given.

Several small exposures were given weekly to the infected area until the hair began to show signs of falling. Provided the operator was always an expert, this would oftentimes be successful, though taking a much longer period than the more modern method of epilation at one sitting. The cumulative effect of the rays would also sometimes be seen, and a severe reaction would be produced, even to the extent of causing permanent alopecia.

Sabourand, with the introduction of his pastille, consisting of Barium-Cyanide of Platinum, which turns from a yellow-green to an orange tint when the exact dose is given which will cause epilation, without producing a dermatitis or any severe reaction. Over 950 cases have been treated at the London Hospital by this method, and in no case, when such method of dosage has been adopted, have any untoward results followed. It has been found by experience that the hair of fair-haired children will epilate slightly easier than the hair of darker children, and consequently slightly smaller doses (*Sab. B—*) should first of all be applied in these.

The child's head should be marked out into areas by a blue pencil and great care in applying the rays should always be taken so that they do not fall on any part of the given areas twice, for should this double dose accidentally be applied to these overlapping edges, great risk is run of permanent alopecia, or at any rate of a dermatitis.

The hair on the patch or patches to be treated should be cut short, and the infected areas exposed to the rays at a distance of 15 cm. from the anode of the tube. A 15 inch coil worked with a direct current of 70 volts, and 5-10 ampères in the primary and 1-15 milliamperes in the secondary circuit, with the interruptor making 500 interruptions per minute. The pastille should be placed on a pastille-holder exactly midway

between the area being treated and the anode of the focus tube, and must constantly be watched for any change in tint either in a blue light or in a darkened room, until one is so experienced in one's tube that one knows practically the exact time any change is likely to take place in the colour of the pastille.

Sequeira recommends the painting of the infected areas treated with collodion at the end of the application to prevent the rest of the scalp from becoming infected. A linen cap should then be applied to the child's head and not removed for a fortnight, unless it be to replace it by a fresh one.

After the lapse of 14 days, the head should be washed with soft soap and warm water twice daily, and the Ammoniated Mercury ointment well rubbed in. At the end of 3 weeks the hair has generally disappeared from the areas treated, and with another week's washing and thorough application of ointment the patient is usually free from infection and generally quite cured.

The fresh hair commences growing from 4-6 weeks from the initial treatment and in 9-12 weeks has usually completely returned.

An interesting feature of the treatment is that this new hair is very frequently curly in nature, especially when the hair was previously straight in appearance, an excellent illustration of this being shown in the accompanying figures.

- References :—
1. "The Varieties of Ringworm and their Treatment." "*Sequeira*.—*British Medical Journal*, July 1906."
 2. "Les trignes cryptogamiques et les rayons X." "Extract des annales de l'Institut Pasteur."—*Sabourand*.

(To be continued.)

DIET IN DIABETES.*

BY

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It is admitted by a majority of eminent Physiologists that the sugar derived, either directly or indirectly, from the alimentary canal is stopped by the selective or secreting action of the liver-cells, and, in these, is transferred into amyloid substances. When not so stopped by diseased condition, it reaches the general circulation, and, as a result, gives rise to the

* A paper read before "The Madras Presidency Hospital Assistants' Association" and sent to *The Antiseptic* for publication.

presence of sugar in the urine in proportion to the amount of sugar absorbed from the alimentary canal. As for the etiology of diabetes, it is still in the hands of the investigators. Some attribute it to the want of glycogenic function of the liver, some to the want of internal secretion of the pancreas, some to the defective digestive system, and some to nervous system, and so on, and so on. Anyhow, in diabetes, the eliminated sugar stands in relation to the amount of sugar, or sugar-forming material ingested. This universally admitted fact is the basis of all the dietetic rules which have to be applied to the treatment of diabetes. But, at the same time, in certain grave forms of diabetes, even if proteins only are consumed, sugar is still found in the urine. Such cases are exceptional. We shall leave it to eminent scientists to settle the causation of sugar in the urine, for there are differences of opinion between eminent scientists themselves. So we shall confine ourselves to generally accepted theories. The principal rule which should govern the construction of dietary for the diabetics is to exclude from it, as far as is consistent with the due nutrition of the body, all those articles of food which contain carbo-hydrates. Perhaps, with the exception of obesity, there is no disease, the treatment of which must proceed on more strictly dietetic lines than that of diabetes. I have very often heard Practitioners say that diabetes is an incurable disease; no improvement could be shown by strict diet, and, by so doing, we merely suppress one of its symptoms (glycosuria) without doing anything to root out the disease. In the first place I don't agree with those who assert that diabetes is incurable. There are a large number of people who suffer from diabetes in a slight degree without knowing it. Very often I have found sugar in the urine brought by patients who never suspected sugar in the urine. Generally, when a patient brings the urine for examination I used to examine invariably for sugar also.

But it is in such cases that strict diet is sure to do good and may prevent the disease from passing into the full blown stage of the malady. A great many mild cases, especially elderly people under suitable diet, may go on comfortably for an indefinite period, but which, if neglected, may lead to a speedy fatal issue. Another reason to justify strict diet is that most of the symptoms of diabetes are due to the presence of sugar in the blood. All the complications such as neuritis, perforating ulcer, cataract, retinitis, polyuria, thirst, are all due to the irritating effects of sugar on the tissues or to the necessity for its elimination in solution through the kidneys. The saccharine blood offers a very suitable medium for the growth of micro-organisms, which bring on such complications as boils, carbuncles, gangrenes and phthisis. If the blood is freed from its excess of sugar, these symptoms and complications can be warded off,

or can be mitigated, if they already exist. Just like any other impairment of function is improved by rest and deteriorated by over-work, so, if the blood is freed from sugar, such rest is assured, and the power of the tissues to deal with the sugar is recuperated. Therefore, by dieting our patients we are sure to relieve our patients' sufferings and prolong their life if we can't completely cure the melody. Having proved the necessity for dieting the diabetics, we shall next consider how are we to set about adjusting the diet. I am one of those who think it would be unwise to draw a list of foods which are free from carbo-hydrates and permit the patient to eat and also another list of starch and saccharine articles and forbid the diabetic to eat. For it is not possible to have a routine diet. But every case must be dealt with according to its own peculiarities, as all the cases of diabetes are not of the same degree of severity. In one, the patient's power of assimilating sugar is *nil*. In another, it falls but little short of that of health.

So the first step we have to take is to find out what our patients' tolerance for carbo-hydrates really is, and to do this we must put him on a test diet. The simplest form of test diet is one which consists of a moderate amount of animal food, excluding milk, and a known quantity of carbo-hydrate containing material, say four ounces of bread. In the case of a vegetarian, give him bread and eggs. After three days of such diet the patients' total output of sugar in one day is estimated, and the amount compared with that of carbo-hydrates in the bread. It is said that four ounces of bread contain an amount of carbo-hydrates equal to 66 grammes of sugar. If, then, the patient excretes less sugar than what he ought to have, we can take it for granted that there is some degree of tolerance. But, if more, then his tolerance is *nil*. The former case may be spoken of as a comparatively mild one, and the latter as a severe one. So we can divide cases of diabetes into two groups:—(1) Mild cases in which some tolerance of carbo-hydrates still exists; (2) Severe cases in which there is no tolerance of carbo-hydrates at all.

Diet in Mild Cases.—We ought to allow a diet which contains considerably less carbo-hydrates than that which we have found him capable of assimilating. For it is never safe to feed a diabetic patient up to the limit of his powers of assimilation. From time to time, however, say once in three months, such a case should be subjected to a period of perfectly strict diet in order to give his carbo-hydrate assimilating functions a complete rest.

Diet in Severe Cases.—The first thing in such cases is to examine the urine carefully for oxybutyric acid. The easiest way of doing so is by

the addition of a few drops of solution of perchloride of iron to the urine, which causes the urine to assume a dark Port Wine colour. For such patients, the change of diet should be made very gradually, as there is always a danger of getting coma. By such a sudden change of diet, coma, as you know, may apparently be precipitated. Therefore, the carbo-hydrates in the diet should be reduced gradually, and bicarbonate of soda should be administered at the same time in quantities of from half to one ounce daily. Often, however, we meet, with cases where the sugar excretion may remain high, and the patients' weight and general condition may deteriorate, or coma may threaten. In such cases it is best to abandon all attempts at a rigid diet and to allow a definite quantity of carbo-hydrates in the form of meat and bread; for DR. PARRY says in such cases proteid is as harmful in the direction of increasing the amount of sugar in the blood as carbo-hydrate. If, on the other hand, the perchloride of iron reaction is negative, we can proceed with restricting the diet without much anxiety. Begin the treatment by eliminating sugar from the diet and also other forms of carbo-hydrates. Then gradually withdraw the farinaceous foods; then bread, and finally even milk; each of these articles being replaced, as it is withdrawn, by a carbo-hydrate-free substitute. After a few weeks of such rigid diet it is better to test the power of consuming carbo-hydrates, and it will often be found that a certain degree of assimilative power has returned. In such cases it is better to allow a small quantity of bread daily. Now we shall consider the different articles of diet.

Fatty Foods.—Fat is the only nutritive constituent of food which cannot do any harm to diabetics. It never increases the output of sugar; therefore we should allow our patient to eat as much fat as possible. The best forms of fatty food are bacon, fat of ham and meats, cheeses, the yolk of eggs, oils, cream, bone-marrow, cocoanut powder (desiccated) and butter. Every diabetic should learn to consume at least quarter of a pound of butter a day. Cream may be taken in coffee or tea. If there is difficulty in digesting fat, administration of a little alcohol at meals will improve matters. Sugar is more injurious than starch, and all kinds of sugar should be avoided in the preparation of food. Food may be sweetened, if desired, with saccharine or saxin. Glycerine is said to have an injurious effect as regards the sugar excretion. Fruit sugar and milk sugar are less injurious than cane and grape-sugar.

Animal Foods.—Diabetic has all the products of the animal kingdom except milk and liver. Milk contains 4 per cent of objectionable milk sugar. Milk, to some, is undoubtedly harmful, increasing the glycosuria and

thirst; others again can take it without much harm. Milk, free from sugar can be allowed with advantage, as it contains a large amount of valuable fat and albumen. DR. R. T. WILLIAMSON, M. D., has contrived a means of preparing artificial milk which is practically free from sugar. Four table-spoonfuls of cream are added to a pint of water and well mixed. The mixture is allowed to stand in a cool place. At the end of twelve hours the fat of the cream, which will have floated to the surface, can be skimmed off with a tea spoon. On examination this will be found practically free from sugar which will remain dissolved in a pint of water. The cream fat is skimmed off the surface of the water in the first vessel, and then placed in another vessel, and to it are added, water, the white of an egg, a little salt and a trace of saccharine. A palatable artificial milk is then prepared. This milk can be allowed freely for all forms of diabetes.

Potatoes.—The average amount of starch in the potato is about 20%; that in bread is nearly 50%. So, weight for weight, the potato is much less harmful than the bread. And also, potato is a carrier of fat, and it can sop up a large quantity of melted butter; for this reason it is often advisable to allow a diabetic, who is not on a rigid diet, a certain quantity of potato in lieu of some bread.

Vegetables and Fruits.—Roughly speaking, all green vegetables, *i. e.*, the parts which grow above ground, are harmless. Roots and tubers should be avoided. No doubt green vegetables contain a little starch, but that is a very small percentage. On the other hand they are, like potatoes, admirable vehicles for fat. Fresh fruits should be used with caution. Dried fruits should never be used. Fruits which contain much sugar, such as grapes, cherries, apples, pears, dried fruits, raisins, dates and figs, should be forbidden. But the following fruits may be allowed since they contain only a small percentage of sugar, *viz.*, unripe green gooseberries, oranges not sweet, raspberries, green grapes, and melons, containing only a small quantity of carbo-hydrates—a small quantity may be allowed. Nuts are valuable food for diabetics, chiefly because of their richness in fat.

Beverage.—The diabetic is a thirsty man. There is no need to restrict his taking liquids, but all those beverages containing sugar must, of course, be avoided. A moderate quantity of alcohol is, undoubtedly, a food for the diabetic and has the additional advantage of making it easier for them to digest fat. Tea and coffee are both admissible, but they must be taken without milk and sugar, and even cocoa may be allowed, provided the pure powder be used and not the one diluted with starch.

The following are good food for vegetarians in place of rice, wheat and bread:—

Bread Substitutes Prepared from Nuts.—Almond flour and desiccated coconut powder can be employed for the preparation of diabetic bread and biscuits. Both almond and coconut cakes sometimes give rise to dyspepsia owing to the large amount of fat they contain, but the dyspeptic symptoms may be prevented by taking a little quantity of alcohol of some sort just after eating the cakes. Desiccated coconut powder is cheap, and excellent cakes can be prepared from it. They have a marked action in reducing the sugar excretion. Coconut pudding can also be prepared, which forms a cheap and excellent substitute for rice.

Oat-meal.—Oat-meal, in spite of its richness in carbo-hydrates, is very advantageous in the treatment of diabetes. The first effect of oat-meal diet is an increase in the glycosuria, followed by decrease. DR. PARRY records a case of a young man aged 22 who was treated by the oat-meal diet. There was a decrease in the acetone and sugar and oxybutyric acid soon disappeared. There was an increase in the body weight. These results led DR. PARRY believe that the starch of the oat-meal has a specific action on diabetes.

Gluten Bread.—This is prepared of wheat flour deprived, by repeated wastings, of as much of its starch as possible.

Bran Bread.—This is prepared from bran washed as free from starch as possible.

Torried Bread.—This is made by toasting thin slices of ordinary bread before the fire until they are deeply and thoroughly browned—almost blackened—so that the starch and gluten are in great part destroyed by the heat, and is a highly acceptable form of food to diabetics.

Almond Cakes.—This is prepared by washing the meal of sweet almonds with acidulated water, the greater part of the sugar is removed, and the meal so treated may, by careful preparation, be made into a palatable cake.

Diet in Coma.—If coma sets in or threatens, all attempts at a highly nitrogenous diet should be abandoned, for the production of the acid effects, which are the causes of the coma, is encouraged by the injection of much proteid food. Under such circumstances skimmed milk may be freely given; and also a small quantity of those fruits which contain very little sugar may be permitted. To recapitulate, the following may be taken as the main indications in fixing a diet for the diabetics:—

(1) Reduce to a minimum, or abolish altogether, all sugar-forming foods. (2) Raise to the physiological maximum all flesh-foods. (3) Find

suitable substances to replace the necessarily discarded carbo-hydrates, and these are to be found amongst the various animal and vegetable fats. (4) Promote muscular activity in order to consume the excess of sugar in the blood.

Before I close these notes, I beg your permission to place before you the rigid diet sheet of DR. R. T. WILLIAMSON, M. D. of the Royal Infirmary, Manchester, who has made a special study of diet in diabetes.

Articles of Food Sanctioned.—Butchers' meat of all kinds (except liver); ham, tongue, bacon, poultry, game, fish, bone-marrow, broths, animal soups, eggs, cheese, cream, butter, oils, green vegetables of all kinds grow above the ground, cabbage, cauli flower, vegetable marrow, tomatoes-melons, cucumber, mushrooms, onions, walnut, almonds, hazelnuts saccharine, saxon.

Forbidden Articles of Food.—Sugar, sweet and farinaceous articles of food, rice, sago, arrowroot, tapioca, vermicelli, potatoes, wheaten bread and biscuits, beet-roots, beans, peas, large onions, liver, oysters, honey, all sweet fruits and dried fruits, especially grapes.

Sanctioned Beverages.—Water, soda, lithia, potash and seltzer waters, tea, coffee, brandy in small quantity, sugar-free milk.

Forbidden Beverages.—Port, champagne, sherry, sweet wines, fruit juices, syrups, sweet lemonade, beer, ale, porter, rum, sweetened gin, cocoa, chocolate, milk in large quantity.

References.—The Practitioner, "The Antiseptic", Parry's book on "Diet in Diseases", "Encyclopedia of Diseases", "Dietetic Hygiene", Taylor's book on "Medicine", "Lancet," and "The British Medical Journal."

Our Contemporaries.

MEDICINE.

Is Blackwater Fever a Form of Malaria?

THE relations of blackwater fever to malaria upon the one hand and to quinine upon the other are points upon which there has been the most heated discussion from time to time, and it cannot be said that either question has yet been entirely settled. It is of interest, however, to consider the opinions and arguments of those who have had opportunities of studying blackwater fever over a period of several recent years, aided by the microscope and by all the modern improvements in the technique of blood examinations and in the knowledge of the special points upon which a watch must be kept.

We have recently (Oct. 17, 1908, page 62) given an account of the Hearsey treatment of blackwater fever, and of the immense reduction in

the mortality from the disease when this treatment is employed. Not only, however, are modern methods successful in curing the illness in a way that was impossible a score of years ago, but also it is probable that the disease can be prevented by the adoption of suitable precautions *ab initio*. Captain Hardy is strongly of the opinion that blackwater is a complication of malignant tertian malaria—a complication comparable to hyperpyrexia, coma, or any of the other well-known symptoms of danger that malignant malaria may give rise to.

CAPTAIN HARDY'S ARGUMENTS.

The argument which Captain Hardy adduces in favour of blackwater fever being a complication of malignant tertian fever may be briefly summarised as follows:—

1. Blackwater fever is invariably preceded by malignant tertian fever; usually a sequence of relapses, occasionally a low continuous fever.
2. Parasites can be found in the peripheral blood in every case, not at the height of the black-urine stage, but in the pre-hæmoglobinuric phase, and to a lesser extent during the first few hours of the illness. STEPHENS states that of ninety-five cases examined by competent observers 95.6 per cent. had parasites on the day before the attack. Captain HARDY found malignant tertian parasites to be present in numbers in the pre-hæmoglobinuric stage, and he was able to observe these parasites, abundant a short while before, disappear within an hour or so after the appearance of the hæmoglobinuria. He suggests that failure to find them during the illness may possibly be due to the hæmolysis, which occurs so rapidly, affecting the weakest—that is to say, the infected—corpuscles first.
3. Blackwater fever may occur in a malarial patient who has left an endemic district sometime since, and even after his return to England. This is precisely analogous to the relapses of malaria itself.
4. In cases of blackwater fever the differential leucocyte count in blood films shows a high percentage of large mononuclear cells, averaging 20 per cent. or more. This high percentage of large lymphocytes is only known to occur in malaria.
5. Indian natives—Sikhs and traders—do not suffer from the disease as frequently as Europeans, the relative incidence liability being, roughly, as 1 to 4. This appears to point to a partial immunity to the disease in the case of Indian natives. Amongst the millions of African natives extremely few cases have been reported. As these natives all suffer from a chronic malignant tertian infection in childhood, it would appear that their freedom from blackwater fever may be connected with

that fact. Captain HARDY has collected statistics which show that healthy native children on Lake Nyassa, under seven years of age, showed malignant tertian parasites in their blood to the extent of 75 per cent. Moreover, natives from America and the West Indies suffer almost as badly as Europeans. Amongst the latter the liability to attack by blackwater fever appears to diminish after five years' residence.

6. Blackwater fever, as regards its geographical distribution, follows that of malignant tertian fever very closely.

7. Systematic quinine takers enjoy a very high immunity from attack. PLEHN's figures in CLIFFORD ALLBUTT's "System of Medicine" show this very plainly.

Captain HARDY further expresses the opinion that the "irregular" taking of quinine is to be highly condemned, being responsible for most, if not all, of the attacks of quinine hæmoglobinuria. The method of taking quinine varies: many prefer to take 5 grains daily; another plan is to take 15 grains every sixth or seventh day. The latter method is becoming widely adopted, and with great success.

It is not every form of "malaria" that is liable to be complicated by blackwater. At least three kinds of malaria have to be distinguished, namely, benign tertian, quartian, and malignant tertian. It is the latter which is followed by the hæmoglobinuria (blackwater) as a complication, and the prophylaxis of the complication is, therefore, simply that of the antecedent disease.—*The Hospital*.

A Typhoid Carrier Fifty-Two Years after Recovery.

D. GREGG (*Boston Med. and Surg. Jour.*, July, 16, p. 80).—From 1905 to 1908 there occurred among the inmates of a small boarding-house in a farming town 7 cases of typhoid fever. As all the cases occurred in the same house an investigation was made to ascertain whether the same person had been employed preparing the meals and whether she had a typhoid history. It was found that the landlady was born in the town 74 years previously, when there was an out-break of typhoid fever in 1856, from which she and her family suffered. After that she enjoyed good health except for considerable diarrhoea at times and occasional sick headache. In 1862 she married and after a time began to take a few boarders. In 1902 her husband died from pulmonary tuberculosis. Neither he nor any of the boarders had been attacked with typhoid fever. After his death she did all the housework and cooking. In August 1905, two cases of typhoid fever occurred when no others were known in

the neighbourhood. Later in the same year 2 other cases occurred, and the only other boarders were 2 elderly ladies who escaped infection. In 1906 the fifth case occurred when there were no other cases in the neighbourhood. In 1907 the sixth case occurred. The patient had boarded 3 or 4 months in the house and there were 3 other boarders who escaped. A lady who succeeded the last patient was infected in about 2 months.

The house was neatly kept, the water supply was good, and as there were no other cases in the town the milk supply could not have been at fault. The blood of the land lady did not give the Widal reaction and the urine contained no bacilli, but cultures made from her faeces on a von DRIGALSKI-CONRAD agar plate yielded many colonies with the appearance of typhoid bacilli. A colony was transferred to bouillon and from the cultures thus made various media were inoculated. The organism was an actively mobile bacillus which responded to all the tests for the typhoid bacillus. With the serum of a typhoid patient it gave the Widal reaction at 1 to 50. Specimens of the urine and faeces taken a fortnight later gave the same results.

Oatmeal in Diabetes Mellitus.

It is a remarkable fact that although starch appears to be chemically the same substance whatever its source, there are clinical grounds for supposing that there must be differences in the ultimate compositions of starches from one source and starches from another. This possibility of there being minute but important chemical differences, at present undetectable by any known methods of analysis and yet of very real significance in medicine, is further suggested by the phenomena of such a disease as peripheral neuritis. Why should lead nearly always pick out the musculo-spiral nerve and select certain constant portions even of this, whereas the toxin of diphtheria shows a predilection for the palatal and ciliary nerves, and leprosy attacks sensory fibres, leaving the mingled motor strands quite untouched? These phenomena surely must depend upon definite but slight differences in the chemical composition of the various nerves.

Be this as it may, there seems to be good ground for supposing that oatmeal, though it is rich in carbo-hydrate, cannot only be well tolerated by some diabetics who cannot tolerate wheat-flour starch at all, but may even actually be of benefit to the patient.

It was VON NOORDEN who first pointed out this fact in 1902. MOSSO had previously shown that some diabetics can take potatoes in abundance,

although they are unable to eat wheat-flour. Either there are chemical differences between the starches of wheat, potatoes, and oatmeal respectively, or else there are different products associated with the starch in the three cases—the associated products in oatmeal benefiting some cases of diabetes mellitus, those in potatoes benefiting other cases of this disease, while wheat-starch nearly always has to be greatly limited or even eliminated from a diabetic dietary.

VON NOORDEN recommends quite large quantities of oatmeal—indeed as much as the patient cares to take in the forms of porridge, oatcake and butter, oatmeal biscuits, oatmeal soup, and so on. It is impossible, however, to continue upon a full diet of oatmeal for many days at a time, partly because of the nausea and distaste that the patient develops, and partly because of the diarrhoea that is apt to arise.

It is well, therefore, to alternate the oatmeal with other diets; one or two days of abundant oatmeal may be followed by one or two when oatmeal is omitted and the meals are of the ordinary diabetic type. Then abundance of oatmeal in various forms for another day or two, and so on in a cycle.

If a case is not going to do well upon oatmeal, the fact will become obvious very soon. In a favourable case, after a slight increase in the glycosuria for one or two days, the quantity of sugar begins to fall, and it soon comes down to a level similar to that obtained upon the strictest dieting. This is a very remarkable fact, and it would be equally remarkable even if it held good of only a small proportion of all cases. It has been proved to be true of quite a number of patients, young and old alike.—*The Hospital*.

Treatment of Sore Throats.

For some time past BERLINER has treated sore throats antiseptically, but by the usual way of the mouth. In many cases, however, relapses occurred, if, at the same time, nasal catarrh were present, the secretion from which passed into the naso-pharynx. He therefore acted upon the idea that, in order to deal more effectively with these sore throats and to prevent relapses, it would be a better plan if the remedy took the same road as the secretions. For this purpose a slow-acting ointment was best to obtain a continuous effect and the subjoined answers well:

R	Protargol	...	...	gr. xxijss
	(in Aq. frigid. mxl. dissolv.)	...	...	3jss.
	Adipia Lanna	...	...	gr. jss.
	Menthol	...	...	

Saccharin	...	...	...	...
Paraldehyde	...	...	...	...
Menthol	...	...	...	...

Of this ointment the patient introduces into each nostril a piece about the size of half a pea, and lightly rubs it into the inner surface. When this amount is exhausted, of which he is made aware by no longer tasting the saccharin, he makes another application.

Catarrhal sore throats are favourably influenced by this treatment, as well as the accompanying hoarseness. An inflammatory sore throat (parenchymatous) runs its course and cleans up more quickly. The method is also of use in the secondary treatment of nasal and pharyngeal diphtheria; as well as in coryza.—*The Practitioner*.

Oatmeal in Diabetes Mellitus.

DR. PARI found that oatmeal in spite of its richness of hydro-carbons, is very advantageous in the treatment of diabetes mellitus. The treatment consists in giving the patient oatmeal for a few days, and this is followed by another diet, because the oatmeal would become monotonous, and it would be impossible for the patient to live on it. This alternate diet should consist of flesh, ham, greens, butter and cheese. The first effect of the oatmeal diet is an increase in the glycosuria, followed by a decrease. In the case recorded of a young man, aged 22, who was treated by the oatmeal diet, there was a decrease in the acetone and the sugar and oxybutyric acid soon disappeared. There was an increase in the body-weight. These results led the author to believe that the starch of the oatmeal has a specific action on diabetes.—*Monthly Cyclopaedia and Medical Bulletin*.

Obesity—Exclusive Milk Diet In.

The writer has been delighted with his experience with this means of influencing obesity. It is the simplest and most convenient technic, as well as the cheapest, while it permits individualization and makes the least demands on the patient's attention. He has found it extremely effective, as he shows by eight typical examples. The patients lost from sixteen to forty-six pounds in from fifteen to eighty-one days on the exclusive milk diet, while it had a favorable influence on complications on the part of the heart and kidneys. The heart disturbances subsided and the pulse tension and rate declined. He allows from three to five pints of milk a day, in five portions: approximately a pint at breakfast time, a glass at 10 A.M., a pint at noon, another glass at 4 P.M., and a pint at 7 P.M. The milk is taken cold or warm, as desired, and up to a pint of

water may be added. This technic obviates thirst and hunger, while the weight rapidly declines. Another advantage is the absence of salt from the diet. The only by-effect observed is a tendency to constipation, which must be combated; occasionally there is a little headache or backache with depression if the weight declines too rapidly. He gives the tabulated findings with the metabolism for three months in one case, remarking that the conditions on the milk diet are remarkably simple and instructive. F. Moritz (*Munchener medizinische Wochenschrift*, July 28, 1908; *Journal of the American Medical Association*, September 5, 1908).

The Dangerous Hot Water Bottle.

The *British Journal of Nursing* relates an inquest on the body of an infant seven months old who died in a London infirmary from the effects of scalds received. When the mother went to visit her child she was told it was dead, and that the nurse had put a hot-water bottle in the bed, by which, the cork having been loosened, the child was scalded. The nurse stated she had not discovered the mistake until some hours after, when she found the child severely scalded "and the skin off its right side." Such accidents are much too frequently recorded, and there are many more which do not find their way into the press. In a recent case a patient was successfully operated on for appendicitis, but was burned by a hot-water bottle, so that there was a raw wound on his leg nearly six inches in length. This necessitated an eight weeks stay in the home, for which the unfortunate relatives had to pay full fees. The *Journal* considers that, in view of the multiplicity of these accidents, most of which are due to carelessness, the custom of a well-known training school of devoting a lecture in each course to the subject of hot-water bottles is to be commended.—*Medical Review of Reviews*.

The Origin of Sunstroke.

DR. SCHMIDT (*Archiv. f. Hygiene*, Vol. 85, 1908)—Direct measurements of the absorption and permeability of various tissues of the body in regard to heat, with calculations of the total radiation of tropical sunshine, served to show that even under favourable conditions of conduction and circulation, the total increase of temperature in the exposed skull is so considerable that an increased heating of the deeper layers, especially the cerebral cortex, through transmitted heat, appears to be possible. This secondary heating of the cerebral cortex, caused by transmission of the sun-rays absorbed by the cranial coverings, is presumably of greater significance for the origin of sunstroke than is the primary heating of the cerebral cortex through radiation.

From the practical point of view, when choosing among thin well-ventilated garments, those of a dark color are preferable in a general way, because they prevent a considerable portion of the light heat rays from reaching the skin, while their greater absorption power is offset by better ventilation.—*The Post-Graduate*.

Malarial Cirrhosis of the Liver.

By DR. A. J. B. DUPREY (*The Lancet*, August 1, 1908, p. 308).

Although cases of cirrhosis of the liver must come frequently under the notice of practitioners in the tropics, but few attribute the cause to malaria. Until quite recently the author, like many others, thought that the condition of these miserable, emaciated, pot-bellied little patients with very often albumin in their urine, was the result of a toxemia brought about by the absorption of poisons from the intestinal canal, most probably generated by parasitic worms.

Having treated now about 12 or more of these little patients the author has no doubt about the malarial origin of their complaint. The disease is a slow fibrosis starting in the liver and spleen and finally ending in interstitial nephritis. It is the result of repeated attacks of malaria, especially when neglected, upon young, unresisting, and possibly badly-fed subjects.

The large mononuclear leucocytes are usually much in evidence in chronic malarial poisoning and sometimes at the edges of a film they are seen to contain pigments. Even without this latter surety the increase of these leucocytes is a sure sign in malarial countries.

It is evident that, taken in time and with proper treatment, the cirrhosis of the liver and even a fairly large accumulation of ascitic fluid, as was present in Case 5, can be cured to a certainty. If the kidneys are affected, as shown by swelling of the ankles and albuminous urine, the author should think that the disease has gone too far and that recovery is impossible. The danger of allowing too much fluid to accumulate is shown by the two deaths mentioned above.

Since this condition of cirrhosis of the liver and ascites is due to malarial poisoning, the treatment must be evident. Quinin in suitable doses regularly administered is the sheet anchor. In combination with quinin the author has used sulphate of sodium and tincture of iron. There is certainly no better, as he has found. Immediate improvement is obvious, even after 24 hours' administration. The liver is found to decrease in size; the urine flows more freely and the ascites is being

gradually absorbed. The treatment must be persevered with and fluid removed on re-accumulation.—*The Post-Graduate*.

SURGERY.

Appendicitis—Etiology of.

From clinical evidence and pathological and chemical observations it would appear that there is produced in the course of the changes in the intestinal wall an abnormal condition associated with formation of calcium soaps. These calcium soaps, when formed in the intestine in excess, produce intestinal sand, and, associated with this, there are symptoms of colic with, under some circumstances, an associated form of mucous colitis or, as the French authors call it, muco-membranous enterocolitis. This change taking place under similar conditions and probably from the same causes in the appendix, where there are poorer opportunities for the discharge of the deleterious bodies, is probably an important factor in the etiology of appendicitis.

The cause of these pathological changes is probably an excess of saturated fats in the food-stuffs, giving rise to the formation of calcium soaps of more saturated fatty acid in the mucosa and sub-mucosa than is normally the case. These soaps are not so easily absorbed as the soaps of the unsaturated fatty acids, and therefore act as foreign bodies in the wall, at times in the lumen as a concretion.—O. T. WILLIAMS—*Liverpool Medico-Chirurgical Journal*, July, 1908.

Lumbar Anæsthesia.

DR. F. CÆSAR, Assistant Surgeon in the General Hospital in Hamburg-Eppendorf, describes as follows his experiences with lumbar anæsthesia:

"Although there have been several communications lately dealing with spinal analgesia, still I feel justified in publishing my own experiences, which have been gained during the last eighteen months, inasmuch as they are based upon the treatment of three hundred cases, a number sufficient at any rate to form a personal opinion on the matter.

"The poor results which have been published elsewhere have been attributed by the authors in part to faulty technique, in part to the toxicity of the preparation used, which, in the doses necessary for producing anæsthesia, often also caused other more or less dangerous symptoms. The 'raised pelvis' position, however, introduced by Kader, enables us to use smaller doses and yet obtain an anæsthesia extending high up, thus improving our technique very considerably.

"At first we performed lumbar puncture with the patient lying on his side, but during the last year or so we have always used the sitting position, and, if the condition of the patient permitted it, with the legs hanging down, as this increases the interval between the spinous processes. Now and then, in cases of flexed joints and in painful inflammatory affections of the abdomen and the lower extremities, we, of course, adopted the lateral position, as also during the latter period of our work. We used a 'record' syringe containing 1 c.c. of cocaine solution, or 5 c.c. of alypin and novocaine solution. For puncturing we used the third intraclavicular space, in which we were guided by Jacoby's line, though sometimes also we tried the second or fourth intervertebral space. In two cases we were not able to get into the dural sheath at all, so that we had to have resort to general anaesthesia. We employed hollow needles of various sizes provided with a central pin. In the first two hundred cases we withdrew the latter only after puncturing the dura. Now we adopt Donitz's method and remove the pin just before reaching the dural sheath, and then puncture the latter with the needle only. We introduce the needle cautiously and slowly just until the spinal fluid escapes. We have made it a strict rule to inject the analgesic only when the cerebro-spinal fluid comes away in a stream or in rapid drops. In all operations on the lower extremities, the genital organs, the perineum and anus, the patient lies on his back after the operation, with his head slightly raised. In operations above the lumbar flexure we keep the pelvis raised (Kader's method) for five to ten minutes, the length of time depending upon the nature of the analgesic and the seat of the operation. Before commencing the operation, we examine the cutaneous sensibility and the reflexes and thus make sure that the parts are anaesthetic, and that the anaesthesia is sufficient for the operation; we also ascertain its upper limits. During the operation we place a screen over the head of the patient so constructed as to allow of free circulation of air and of observation of the patient, but preventing the latter from looking on at the operation.

"In very nervous patients, and especially in laparotomies, in which the pelvis is kept raised, we have several times induced a somnolent state by injecting scopolamine gr. $\frac{1}{32}$ and morph. gr. $\frac{1}{4}$, and have had excellent results. A patient in this state has only a very hazy idea of what is being done with him."

The author then discusses his experiences with various analgesics and refers thus to alypin:

"Since March 1906 we have used alypin (prepared by the Bayer Company, Ltd.) exclusively in our lumbar punctures. According to the

investigations of Impens it is two or three times less toxic than cocaine, and its analgesic action is equal to that of cocaine. The alypin solutions are still effective in strengths in which the cocaine has lost its effect. Its advantages are that its reaction is neutral and not acid, that it is more easily soluble in water, and that it can also be easily combined with suprarenal preparations.

"The tablets we used contained alypin gr. $\frac{1}{2}$ and suprarenin bor. $\frac{1}{100}$."

"They are supplied in well-sealed little tubes, which have been sterilised in dry heat, so that with a little care one can easily work under aseptic conditions.

"At first we employed Braun's method of inducing anaesthesia with alypin as follows: When the spinal fluid began to appear, we attached the 'record' syringe, containing one or two tablets, to the hollow needle, drew up 5 c.c. of cerebro-spinal fluid, removed the syringe and closed the needle with the central pin. The tablets take four to five minutes to dissolve, and then 1 c.c. of the fluid contains alypin gr. $\frac{1}{2}$. Of this we injected as much as required.

"We soon gave up this method because it was too great a tax upon the patient, who had to sit with his body well bent over while the needle was being introduced and left in for five minutes.

"We now proceed as follows:

"We keep a number of small sterile tubes ready, containing 5 c.c. of sterilised water, and provided with a rubber cap. Immediately before the operation the theatre sister places two tablets in one of these tubes with due aseptic precautions, and dissolves them by shaking the tube. (One c.c. of this solution then contains gr. $\frac{1}{2}$ of alypin, with a corresponding amount of suprarenin. Of this we use as much as is necessary, and throw away the rest. We take a new tube for every operation.

"A solution like this keeps about a week, but on account of the suprarenin it soon becomes pink. The change in colour, however, has no effect on the anaesthetic properties of the solution and is harmless in itself.

"In this way we have used alypin for producing spinal analgesia in 150 cases, and have performed the following operations:

(1) Intestinal operations	...	...	...	...	22
(2) Hernia	...	...	...	...	40
(3) Operations on the genito-urinary organs in men	...	...	...	...	14
" " " " women	...	...	...	...	6

* A convenient form of employing alypin are alypinoids E, tubes of 10 tabs, of $\frac{1}{2}$ gr. alypin + 5 min. suprarenin boric; of a solution 1: 10,000.

(1) Renal operations	...	...	...	1
(2) Operations on the rectum and anus	...	...	...	15
(3) Operations on the lower extremities, bones and joints	...	...	...	14
" " " " " soft parts	...	...	...	29
(7) Miscellaneous (burns, tumors of the abdominal walls, &c.)	...	...	...	9

"The dose of alypin for the lower extremities and the perinæum is about gr. $\frac{1}{2}$, for operations on the trunk of the body gr. $\frac{1}{2}$ -1 $\frac{1}{2}$, according to the level of the operation.

"The analgesia was perfect in 144 out of 150 cases, unsuccessful in six cases only, *i.e.*, in 4 per cent. of the cases.

"In three cases the injection failed although the technique seemed perfect and general anaesthesia became necessary. In three cases the anaesthesia was not sufficiently deep for the operation, but this was our own fault, because we wanted to try a smaller quantity than usual (gr. $\frac{1}{2}$ for appendicectomy). Secondary effects were observed in thirteen cases, *i.e.*, in 8.6 per cent. of the cases. In nine cases the operation was accompanied by vomiting and a feeling of collapse, varying in degree from slight nausea to severe vomiting, lasting five minutes and more. In three cases there was great collapse with loss of consciousness, bad pulse and threatening paralysis of respiration.

"In every one of these cases the patient was a decrepit, weak individual who had had the maximum dose of gr. 1 $\frac{1}{2}$ of alypin.

"Unfortunately we had also to record a death, which occurred in a woman aged sixty-five who was in a very reduced state of health, poorly nourished and very weak, and besides had so diseased a heart that we did not think that she would stand general anaesthetic.

"After-effects of spinal analgesia were observed eighteen times, *i.e.*, in 12 per cent. of the cases, and consisted of headaches, pains in the back of varying severity, vomiting and neuralgic pain.

"The onset of alypin analgesia was extraordinarily rapid as compared with other methods. While with other methods we could only commence the operation in about eight to ten minutes—in most cases not before twelve to fifteen minutes after injection—with alypin the analgesia was generally complete in three to five minutes.

"The duration of the anaesthesia varied with the dose injected, and lasted on an average with small doses (gr. $\frac{1}{2}$) an hour and a half, with medium doses (gr. $\frac{1}{2}$ -1) two to two and a half hours, and with large doses (gr. 1-1 $\frac{1}{2}$) three hours and more.

"With smaller doses and larger operations it happened occasionally that the analgesia, which had been perfect at the beginning, became less

so towards the end of the operation, so that, though the pain was diminished, it was not altogether absent.

"In our experience the motor fibres are affected less by alypin than by other remedies.

"Like other authors, we are convinced that the failures we have had have been due entirely to technical errors, and were not due to the anaesthetic. It is equally certain that shock also often plays a part in these cases. A proof of this is seen in the circumstance that there were no, or only very slight, secondary symptoms in those patients who had received an injection of scopolamine and morphium, even when the operation had been a long one and the pelvis had to be raised, and although large doses of alypin had to be given. In our experience, the combination of scopolamine and morphium in excitable and nervous patients of the better classes is a procedure which we can entirely recommend. With this combined form of anaesthesia we have seen better results and fewer unpleasant symptoms than in simple lumbar anaesthesia, and besides that, scopolamine deadens consciousness and memory, so that the patients scarcely remember anything about the operation.

"In judging of the after-effects of the analgesic preparations we have used, we have tried to separate, as far as possible, the effects of the lumbar anaesthesia from those of the operation. It is, however, not always possible to do so, because headaches may be the result of some fever, as well as of the analgesic, and pains in the back often follow abdominal operations.

"Since the after-effects most often seen, *viz.*, headaches, vomiting and a feeling of collapse, are well known to be toxic effects of the preparations, they are more common when large doses are given, though no doubt idiosyncrasies on the part of the patient play a part in their production.

"These effects, therefore, cannot be eliminated altogether in the preparations in use so far, but they have become much fewer since we have learnt to use smaller doses.

"I do not hesitate to recommend alypin as a reliable, very useful lumbar anaesthetic, which is at least equal to cocaine in its anaesthetic action and is very much less toxic, besides possessing the advantage of acting less strongly upon the motor nerves than other preparations. It does not yet conform to the requirements of an ideal anaesthetic; failures and unpleasant effects cannot be avoided altogether; nevertheless, they can be reduced to a minimum if the technique is good and the directions are carefully followed, and the doses given are not too large."—Abstract from *Mitteilungen aus den Hamburger Staatskrankenanstalten*, vol. vii. pt. 4, *Clinical Excerpts*.

Iodine Injections in the Treatment of Tuberculosis of the Testicle and Epididymis.

FINOCCHIARO (*Il Polichinico, Sez. Chir.*, February, 1908). The author advocates iodine medication by means of local parenchymatous injections, as recommended and practised by Durante. According to him, if the patient afflicted with tuberculous epididymitis is a youthful individual, who naturally objects to losing both testicles, it is advisable to remove the worst affected organ, in which the process is farthest advanced and to treat the other with injections of iodine solution directly into the hardened portions, in order to arrest the disease and at the same time secure the beneficial psychic effect of the remaining testicle. The patient is reassured by the presence of even an atrophic and softened organ. At any rate, the iodine method suggested by Durante is well worthy of consideration at the present day, in virtue of its favorable clinical results as well as the experimental findings. However, this method of treatment severely taxes the patience of the subject, and the perseverance of the physician, if a complete cure is to be obtained.

In those cases where the tuberculous process is in an early stage, and still restricted, Durante injects into the epididymis an iodine solution of 1.100 of distilled and sterilized water, with potassium iodide as a solvent, beginning with a few drops and gradually increasing the amount, endeavouring to avoid congestion of the tissues and to obtain uniform absorption of the medicinal agent. An average number of 30 injections suffices to bring about an evident local improvement, and to induce a general raising of the psychical and physical standard. The epididymis becomes smaller in size, and its consistency increases, through the transformation of the newly developed tissue into fibrous tissue, under the strongly stimulating effect of the iodine. Provided the injections are administered with scrupulous attention to asepsis and antisepsis of the parts—a most important factor for a successful outcome—no disturbances are apt to arise, except considerable pain at the first sitting, but this can always be tolerated.

In connection with the local treatment, Durante recommends general iodine treatment during the local course, so that the entire organism is kept under the influence of iodine medication. Sea bathing, rest and hyper-nutrition may be prescribed with advantage. This treatment has already benefited many patients, relieving their local sufferings, arresting the disease and cheering their minds, where castration would otherwise have been inevitable. More than 12 patients were cured and remained well under ambulant treatment in the clinics. In two patients treated by

Durante, not only was a complete cure obtained of bilateral tuberculosis of the testicle, but these individuals some time afterward reacquired the power of ejaculation and fertilization, and the examination of the semen showed the presence of a fair number of normal spermatozoa.

The author is convinced that the iodine treatment undoubtedly represents an efficient and radical measure in the treatment of tuberculous epididymitis. By limiting the tuberculous process through a fibroid transformation of the tissues, it does not harm the secretory function of the testicle, but may actually help to replace the ducts destroyed by the infectious process, and thus assist normal ejaculation. Keeping in mind the possible serious consequences of operative treatment, the recurrences against which it cannot reliably protect the patient, and the disturbances on the functional side which may result from any surgical procedure, the author does not know of a more efficient curative method than the plan proposed and adopted by Durante, in shape of the iodine treatment of tuberculous disease of the testicle and epididymis.—F. R.—*Medical Review of Reviews.*

Gangrene of the Skin of the Foot after Stovaine-Adrenalin Spinal Anæsthesia.

From time to time untoward effects are recorded after spinal anæsthesia. The chapter of the dangers of this method has yet to be written. In the *Intercolonial Medical Journal of Australasia* for July Dr. D. MURRAY MORTON has reported an unusual sequel—gangrene of the skin of the foot—which he describes as "unique amongst a very considerable number of administrations of stovaine-adrenalin during the last three years at St. Vincent's Hospital" (Melbourne). A debilitated man, aged sixty-five years, was admitted on Feb. 27th last suffering from two chronic ulcers in the lower part of the left leg. One began after a slight injury two years previously and the other spontaneously. There were no varicose veins and there was a doubtful history of syphilis. The urine did not contain albumin or sugar and the knee jerks were present. On March 13th, under stovaine-adrenalin spinal anæsthesia, the ulcers were excised and Thiersch skin grafts were applied. Two-thirds of a cubic centimetre of a 10 per cent. solution of stovaine with half-a-cubic centimetre of adrenalin solution were injected into the spinal canal. There was no difficulty in the injection, but a few minutes afterwards the patient showed symptoms of collapse. He vomited, the pulse became small, the face became pallid, and the respirations became very shallow. One-twentieth of a grain of strychnine hypodermically and brandy were given,

and artificial respiration was performed. Improvement took place, and the operation was completed. Four days later an oval purplish vesicle, of about the size of half-a-crown, appeared on the sole of the left foot behind the little toe, and the skin beneath became purple. There was neither pain nor inflammatory reaction. Two days later a similar patch appeared on the outer part of the heel. In each case the subjacent skin became black and necrotic and separated slowly as a slough. On May 22nd healing was far enough advanced for the sores to be grafted, which was done under local cocaine anaesthesia with good result. The Thiersch grafts applied to the leg were perfectly successful. GOLDMANN has reported a case of gangrene of the skin of both heels following a spinal injection of two cubic centimetres of novocaine-suprarenin solution. The patient was fifty-two years of age and healthy, except for a moderate degree of arterio-sclerosis. The injection was followed by severe pains in the neck, back, upper limbs, and especially in the heels. DR. MORTON suggests that the adrenalin may have been responsible for the gangrene, which was obviously a trophic change. It will be interesting to note whether cases of gangrene occur after the spinal injection of the stovaine glucose solution which is recommended by MR. A. E. J. BARKER and so far has given excellent results.—*Lancet*, Oct. 24.—*The Medical Times*.

OBSTETRICS AND GYNÆCOLOGY.

Prolonged Retention of the Placenta.

MM. RIVIERE and RAQUINE (*Gaz. Hebdom. des Sciences Medicales de Bordeaux*, Aug. 2, p. 362). Prolonged retention of the placenta in the uterus when pregnancy has advanced nearly to term is rare and its treatment may be very difficult.

CASE 1.—A woman, aged 23, who had previously borne a dead child at the 7th month and had an abortion at two months, in her third pregnancy again had a dead child at the 7th month. She was admitted to hospital 3 days later, the placenta being still retained in the uterus. It was not known what attempts at extraction had been made, but the uterine contents were extremely foetid. The uterus reached to the umbilicus and was slightly tender on palpation. The cervical canal was closed and resistant, but under chloroform 2 fingers were with some difficulty introduced into the uterus. To the right was found a small cavity which was readily freed from some placental tissue, but on the left a second cavity was felt which extended above the brim and seemed filled with placenta. This cavity was reached with such

difficulty and the finger was so tightly grasped by its orifice that detachment of the placenta was impossible and was abandoned in favour of a large irrigation of potassium permanganate. Next day the patient remained exhausted, the abdomen was painful, and in spite of repeated vaginal and uterine douches a foetid odour persisted. The temperature was normal. Next morning she had a rigor, the temperature rose to 101°, normal. Under chloroform another attempt and the abdomen was very painful. Under chloroform another attempt was made to introduce the fingers into the cavity containing the placenta, but so rigid were the parts that only a few shreds were with difficulty extracted. A curette was then cautiously inserted for a short distance and brought away small portions of softened and foetid placenta. These measures were so ineffectual that they were abandoned and the uterus was washed out, a Champetier's bag being inserted to dilate the cervix. During the day the patient became worse, but no uterine action was excited by the bag which was withdrawn in the evening when another unsuccessful attempt was made to reach the placenta. Next day the patient's general state appeared rather better, but the abdomen was distended and tender. The temperature was 101°. All attempts to penetrate into the uterine cavity were fruitless, but a uterine douch in the evening brought away a few fragments of placenta. The patient became worse during the night and died in the morning 6 days after confinement.

At the necropsy the peritoneal cavity was found full of thick greenish pus which was extremely foetid. The uterus was bi-cornuate, the right cornu being but slightly developed while the left, which contained the placenta, was much larger. The internal orifice of this cornu was surrounded by dense firm tissue which resisted all attempts at dilatation, while its fundus was thin and friable and presented as a blackish area a perforation plugged by a portion of placenta.

The uterine malformation was evidently the cause of the premature labours and also of the resistant state of the cervix. The perforation was possibly of criminal origin, though this was not likely. It was unlikely to have resulted from the use of the curette in consequence of its situation at the fundus; the instrument was inserted only into the lower uterine segment and used with care. The fact that fluid injected into the uterus was readily returned showed that perforation occurred late. The writers regard the perforation as due to progressive gangrene of the uterine tissue from contact with the infected placenta (metritis desiccans). This view was supported by death being due to septicaemia rather than peritonitis, which only occurred at the close. In the face of failure to remove the placenta by the vagina the writers considered the advisability of abdomi-

nal hysterectomy, but did not feel justified in performing it in the exhausted condition of the patient and in the septic state of the uterus.

CASE 2.—A primi-para, aged 24, was delivered of a living child at term, but the placenta was retained by the firm contraction of the internal os. Prudent attempts by the accoucheur to remove the placenta having failed, expectant treatment in the form of careful antiseptic precautions was practised and the patient was sent to hospital on the 7th day after delivery. Her general condition was good, the pulse was somewhat rapid, and the temperature was 100.3°. She complained of occasional painful uterine contractions. The uterus reached to the umbilicus and was contracted and globular, both it and the abdomen generally being free from tenderness. The cervix was closed and scarcely admitted the point of the finger. Even under chloroform it was impossible to introduce a finger into the uterus, and all attempts at manual or instrumental removal of the placenta were abandoned. In spite of the prolonged retention of the placenta the writers decided to perform abdominal hysterectomy on account of the satisfactory condition of the patient. After a quiet night the temperature next morning was 102° and the pulse 140. The operation was without incident. The peritoneum was healthy and the cervix was divided by the thermocautery, a gauze drain was passed into the vagina through the cervix, and the abdomen was closed without drainage. After the operation the temperature was 100.7° and in the evening it had fallen to 99.3° while the pulse was 120 and the urine abundant. During the next 2 days the temperature ranged about 101.5° and the pulse from 120 to 140. Though the patient felt well and the local condition was satisfactory, she assumed a yellowish tint. Next morning she complained of distension of the abdomen which was slightly tympanitic but painless. The stomach was washed out which evacuated much gas and some greenish fluid. The abdominal wound was satisfactory, but the respirations were short and difficult. The pulse was 136 and the temperature 100.3°. The lavage of the stomach gave some relief but the respiratory distress increased, the pulse became uncountable and the patient died in the evening 3 days after the operation and 10 days after confinement. At the necropsy the sutures were intact and the pedicle satisfactory, but though the abdomen was not distended the peritoneum contained a large quantity of thick green pus.

The writers conclude that when the placenta is thus obstinately retained in the uterus at or near term for several days after prudent attempts to remove it have failed, abdominal hysterectomy should be performed. Although the mortality, when the uterus is infected, is

undoubtedly high, yet that from expectant treatment, such as douching and the use of the dilating bags, is even greater.—*The Medical Review*.

Dysmenorrhœa and Its Treatment.

By DR. GEO. E. NORD (*Med. Brief*, October, 1908).

"When a woman suffers from backache, fulness at the groins, cramps, radiating or shooting down the thighs, and various abdominal pains at the time of menstruation, she is then said to be suffering from dysmenorrhœa." The treatment should be directed to the removal of the cause.

I.—*Intrinsic Causes.*

1. Inherited or acquired rheumatic or gouty diathesis. Keep circulation active and body warm by woollen underwear, and the occasional use of vapor or salt water baths. Give anti-rheumatics and tonics.

2. Inherited or acquired neurotic diathesis. Treat causes of the neuroses. General tonic and hygienic measures. The hysterical should use nerve sedatives and tonics, with due attention to diet, cleanliness and regularity of the bowels. The neurasthenic requires change of air and a liberal amount of nourishing food, sunshine and systematic exercise with frequent baths and frictions, especially along the spine. During the painful menstruation give sedatives such as viburnum prunifolium, apiol, cannabis indica and chloral. General nerve tonics—*nux vomica*, *damiana*, phosphorus and various glandular extracts—have been variously used in the intervals. Married life and parturition cure some cases.

3. Congenital malformations of the uterus, such as narrowing of the neck, stenosis, contractions, etc. Order hot sitz baths and hot vaginal douches with mechanical dilatation, assisted by local applications of belladonna ointment to the os and cervix, and also the galvanic current.

4. Polypus growths. "This growth sometimes yields to the influence of large doses of ergot, and becomes dislodged by the powerful tonic uterine contractions excited by the ergot." (!?)

5. Anemia, chlorosis and malarial toxemia. Order change of air, liberal diet, regularity of the bowels, saline baths and gymnastics. Give iron, quinin and arsenic.

6. General plethora requires catharsis, mild diet, "venesection or application of leeches to the anus, perineum, or to the internal surfaces of thighs."

7. Sluggishness of the portal circulation. Give calomel, blue mass, phosphate of sodium. Carlsbad salts; walking, horseback riding, and gymnastic exercises, "such as chopping wood or boat-rowing."

8. Pelvic congestion, areolar hyperplasia, endometritis, pelvic peritonitis and cellulitis. Abandon corsets, rest in bed, elevate hips, hot poppy fomentations, leeches to perineum, hot sitz baths, and douches. Later swab vagina or endometrium with iodine or ichthyol or nitrate of silver or solutions of carbolic or chromic acid. Insert tampons. Tonics. Specific remedies for specific taints.

II.—*Extrinsic Causes.*

1. Exposure to cold and wet. Order warm baths, diaphoresis, catharsis, Dover's powder, hot drinks and quinine.

2. Displacements "due to faulty dress, dancing or external violence." Replace uterus, employ proper skirt supporter, give uterine sedative tonics and improve hygiene.

3. Luxurious and sedentary habits should be treated by active and systematic exercise, mild diet, change of air, catharsis, and warm baths, to remove the accumulated poisons. A sea voyage often works a cure.

4. Sexual excesses, self-abuse and late hours should be corrected by physical exercise in the open air, etc.

5. Emotional influences and sudden mental disturbances are best corrected by cheerful surroundings, horseback riding, golf, and tennis in conjunction with proper mode of life.

[The author overlooks almost entirely the whole modern field of surgical relief for the painful disorders of menstruation. As for ovarian dysmenorrhea, which is one of the most frequent forms, no allusion at all is made.—ABTRACTOR.]—*The Post Graduate.*

The Causes and Treatment of Abortion.

BY

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[A Lecture given at the London Polyclinic, October 21, 1908.]

FOR all practical purposes the term abortion may be accepted to mean premature expulsion of the ovum at any time before the embryo is viable. In this lecture it is proposed to deal particularly with the causes and treatment of abortion, but the question of diagnosis will have to be considered to some extent. It is a fact that the causes of abortion are

sometimes obscure, and in a particular case it may happen that a cause cannot be assigned at all. This probably means that we do not know sufficient about the present state of health of the patient, or some facts in her previous history have escaped her, or our, attention. It is, however, a certainty that abortion does not occur at all easily in an absolutely healthy patient, and a cause can generally be found if a careful search in all directions is made. Women are in the habit of assigning the blame for an abortion to some trivial accident or mental emotion, and although we cannot state that these never are the actual causes, we may accept as an axiom that such accidents are not likely to cause abortion unless there is also present some predisposing cause; in other words, that the individual is not healthy in every respect. It is not possible to draw up a list of predisposing, as opposed to exciting causes, because it is a fact that the lesion which predisposes to abortion may also be the actual cause. An attempt, however, may be made with propriety to classify the causes of abortion, and to indicate their importance and mode of action.

Most abortions will be found to fall naturally into four classes, namely: (1) Those associated with uterine congestion and endometritis; (2) those the result of syphilis; (3) those caused by general diseases; (4) those the result of accidents.

1. Uterine congestion and endometritis is undoubtedly the commonest cause of abortion, and although it occurs most commonly in women who have had children, is certainly to be found in nulliparous women and virgins. Hence a first pregnancy may end in abortion on this account. Along with uterine congestion and endometritis, those lesions of the uterus which cause or accompany these conditions must be reckoned—chronic infection, gonorrhœal or otherwise, retroversion and retroflexion. Fibro-myomata, subinvolution, mucous polypi, salpingo-oophoritis and cervical lacerations, are the common lesions which are associated with endometritis, and these therefore may be reckoned as important causes of abortion. In virgins endometritis may be the sequela of a chronic vaginitis in infancy, following perhaps an exanthem such as scarlatina, measles, or diphtheria, whilst almost any general infection such as enterica or pneumonia may set up a uterine infection, which becomes chronic. Why uterine congestion and endometritis should cause abortion is not at first sight clear, but it is not difficult to formulate a possible reason based on the pathology of these affections. Most important in this respect must be the condition of the capillaries in the endometrium, which in uterine congestion are widely dilated. This must give rise to undue vascularity of the decidua when an embryo becomes implanted, and as a result the widely dilated

thin-walled vessels must ever predispose to hæmorrhage. In fact in this condition any sudden change in the blood pressure, which may be brought about by a trivial accident or emotion, will possibly end in rupture of one of these vessels and consequent hæmorrhage into the chorio-decidual space. Such a hæmorrhage coagulates and acts as a foreign body in the uterus, stimulating it to contract. The compression and flattening of this clot by contractions tends to separate the chorion from the decidua with the result that more hæmorrhage occurs, very soon in sufficient quantity to escape externally. If the chorion is sufficiently detached, death of the embryo follows the hæmorrhage, and expulsion sooner or later must occur. If on the other hand the uterus can be made to tolerate the presence of a blood clot, abortion may be staved off, and the embryo may continue to live and grow. Therefore it follows that hæmorrhage must be the initial stage of abortion in this class and embryonic death must be a secondary occurrence.

2. Syphilis is accepted as a cause of abortion, and perhaps is the most widely known cause of repeated abortion, but it is certainly not nearly such a common cause of abortion in general as is uterine congestion. There is very little authoritative teaching as to why syphilis causes abortion, but considering the few facts at our disposal the real reason may be hinted at. First of all it is commonly agreed that syphilis causes first the death of the embryo, and it is not until the uterus makes an effort to expel the dead embryo that any hæmorrhage occurs. Thus the sequence of events is transposed in this class compared with class 1. Secondly, it is paternal syphilis which is responsible for the majority of syphilitic abortions; in other words, it is syphilis of the embryo and its coverings, not of the mother, which is truly responsible for the premature death of the embryo. Thirdly, abortions due to paternal syphilis occur at later and later dates in succeeding pregnancies; in other words, as the syphilitic virus becomes more attenuated, which we know it tends to do, the lesions which ultimately kill the embryo take longer to develop. The real pathological change underlying all syphilitic lesions, whatever their nature, is an endarteritis, that is to say, a proliferation of the internal coat of the smaller arteries, gradually leading to the obliteration of the lumen of these vessels. If it could be shown that there is obliterative endarteritis in the vessels of the chorionic villi in syphilitic abortions, the case would be proved. Unfortunately this is very difficult of proof, for it is very often difficult to demonstrate even in perfectly definite gummata elsewhere. But it is known that the effects of an endarteritis, namely white infarcts of the placenta, are at least as common in syphilitic abortions as in other conditions, and it is therefore almost reasonable to argue that the true

cause of syphilitic abortions is an endarteritis of foetal vessels. We must not forget that to prove this we should examine the vessels of the foetus itself as well as those of the chorionic villi, and we seldom have the opportunity of doing this. It is not out of place here to note that a white infarct of the placenta is a whitish or yellowish mass, produced by the deposition of fibrin from the maternal blood upon chorionic villi, which have been deprived of their blood supply by an obliterative endarteritis.

3. Under the heading of general diseases we have to consider first the acute exanthems, such as typhoid fever, scarlatina, pneumonia, measles, diphtheria, and small-pox. It has been long recognised that these diseases are fertile causes of abortion, and it is commonly believed that the high temperatures which accompany them are causes of death to the foetus. This has been proved experimentally to be possible by artificially raising the temperature of pregnant animals, with resulting death of the embryos and abortion. It is, however, more than likely that the toxic blood conditions which accompany these fevers are really the cause of the foetal death and abortion. It is possible that this toxic condition has an immediate effect upon nerve centres causing uterine contractions. Possibly, too, the foetus *in utero* actually suffers and dies from these complaints, for the bacteria causing some of them have been found in the foetal circulation. In addition to the exanthems there are certain other general diseases which certainly cause abortion under some conditions; these are tubercle, heart disease, cirrhosis of the liver, Bright's disease, diabetes mellitus, profound anaemia. Some of these diseases do not inevitably produce abortion, and this is especially the case in tubercle and diabetes; but as a purely general statement it must be accepted that there is a considerable liability to premature expulsion of the embryo in all of them.

4. Abortions are said to be very frequently caused by accidents, often of a very trivial nature, such as tripping over a step, stumbling upstairs, overreaching, etc., and although the belief is so widespread that these accidents will cause abortion, it is very difficult of proof. Quite on the contrary, it seems much more likely that these trivial circumstances would not be likely to cause abortion as long as the uterus is in a healthy condition. It is highly probable that in many cases in which an accident is said to have caused abortion the uterus is not really healthy, but disposed to abortion from the first. Considering how common it is to find congenital retroversion and flexion of the uterus and endometritis, even in virgins, it is not surprising that many young women should be liable to abortion, which would at once be brought about by some trivial accident.

The same may be said of shocks and emotions, which are often said to cause abortion. These states must act upon the uterus by sudden changes in the circulation, and if the uterus is already congested, as in class (1), a small hæmorrhage is readily produced by the rupture of a capillary, and abortion occurs in the end. On the other hand, we must concede that abortion may be directly caused by a serious accident, even though the uterus and pelvic organs are normal. Direct injury is a rare event except in criminal cases, although a fair number of cases are on record where abortion has been caused by kicks or blows in the abdomen. These injuries are more likely to act in the later months when the uterus is large and well above the pelvic brim.

In considering the treatment of abortion it is usual to act in a somewhat different manner according to whether the abortion is threatened, inevitable or incomplete. Of course, this classification of cases implies an accurate diagnosis of the condition, by no means always an easy matter. Abortion may be said to be threatened in a pregnant woman when she has hæmorrhage from the uterus and pain due to uterine contractions. At the same time, as long as the cervix is closed there is always a chance that expulsion of the embryo is only threatened. If, however, the cervix is opening up, and some part of the embryo, its covering, or even only a blood clot can be felt protruding, then abortion as a rule is inevitable. This, however, like many other things in medicine, is not invariable, for it sometimes happens that the os dilates considerably, as a result of uterine contractions, and permits of the embryo being felt, and yet under appropriate treatment expulsion of it may be staved off. This is more likely to occur where no hæmorrhage has occurred, and in the middle period of pregnancy rather than in the early weeks.

The diagnosis of threatened abortion is sometimes difficult because of the impossibility or difficulty of establishing the fact that the patient is pregnant at all. It must never be forgotten that pain and hæmorrhage are symptoms of other conditions besides abortion, and of none more important or serious than extra-uterine gestation. It is quite astonishing how many ruptured tubal gestations or tubal abortions are at first mistaken for simple uterine abortions, and wrongly treated. Fortunately a fatal result does not often occur, for a large percentage of tubal gestations with hæmatocèles recover if treated in an expectant manner. Therefore, it must be clearly laid down that the diagnosis of threatened abortion cannot be made until the presence of a simple uterine pregnancy has been established, after a due consideration of the history of the case combined with a complete bimanual examination. When this has been

done the treatment of a threatened abortion is well defined. The patient must be kept absolutely at rest in bed, and steps must be taken to prevent or abolish uterine contractions. The best drug for this purpose is opium given by the mouth, or morphia hypodermically. It need hardly be said, however, that this method of treatment requires supervision, and cannot be adopted in a patient who is not likely to be seen again for a week—for example, a hospital out-patient. The amount of opium or morphia necessary can only be ascertained by observation of the effect produced. If the drug produces a cessation of the pain and contractions, the dose may be lessened and given at longer intervals. In my experience, no other drug has given the same good results as opium in these cases; viburnum and hydrastis are quite uncertain in their action. It is possible that the combination of three half-drachm doses of calcium lactate with opium may assist by increasing the coagulability of the blood. This drug should be used only after a careful estimation of the coagulation time—an investigation which is troublesome to carry out in the midst of a busy practice. It is a matter of great difficulty, sometimes, to know how long to keep a patient in bed after an abortion has been averted; it can only be said that it is better to err on the safe side and insist on a full week's complete rest after all bleeding and pain have ceased. While undergoing this treatment the patient must have a non-stimulating diet, and the bowels should be kept open daily by mild laxatives, combined with enemata if necessary.

If, on examination, the os uteri is found to be opening up and some part of the embryo is actually felt to be coming down through it, abortion is practically inevitable in the early and middle periods of pregnancy, especially if hæmorrhage has occurred. The treatment in this case is essentially different. The object to be attained is complete emptying of the uterus by means of normal uterine contractions, and the means of attaining this differ somewhat at different periods of pregnancy. At all times, however it must be remembered that the administration of ergot is bad treatment, for although sometimes it produces the desired result, it more often leads to the expulsion of the embryo alone; its coverings, the placenta or part of it, or the decidua being retained *in utero*. The reason for this is that ergot tends to cause tonic contraction of the uterus, and may keep the cervical canal in a condition of spasm, so that it will not allow all the uterine contents to be expelled. The exhibition of ergot without any other treatment is, without doubt, a common cause of incomplete abortion and long continued exhausting hæmorrhages. Ergot, therefore, should not be given at all in abortion until the uterus is empty; there is no harm in giving it then to keep the uterus well contracted. The

simple cases to treat are those occurring in the early weeks of pregnancy, when the cervix uteri is felt on examination to be dilated enough to admit the whole of one finger, and the embryo with its coverings is already detached from its uterine attachments. It is an easy matter then to sweep the finger round inside the uterus and hook out the contents, going over the whole surface to see that nothing is left behind. This little operation, however, must be carried out in an aseptic manner. It is an absolute axiom that neither the finger nor an instrument should be put into the uterus at any time unless the vulva and vagina have been made surgically clean and the finger or instrument is aseptic. To ensure this the vulva must be shaved, or the hair clipped very close with a beard-clipper, and then washed with either soap followed by an efficient antiseptic. Lysol is one of the best antiseptics for this purpose in the strength of one drachm to a pint. The vagina can be cleaned in the same manner, pouring in the ether soap and then swabbing and rubbing the walls with pledgets of cotton-wool which have been previously sterilised by heat or by prolonged soaking in an antiseptic. Instruments must be boiled immediately before use, and bare fingers must not be used. The bare finger cannot be made aseptic for more than a few minutes by any known method without injury, so that it is best to wear a freshly boiled rubber glove. With these precautions the case will almost certainly run an aseptic course. The anxiety and worry which inevitably follow a septic abortion make it imperative for our own sakes that we should adopt the most stringent precautions. The difficult cases to treat are those in which the os uteri is not sufficiently dilated to completely admit a finger, and yet some part of the embryo can be felt. The treatment of this condition is somewhat different in the early weeks of pregnancy—say up to the tenth—from that adopted from the tenth onward. In the early weeks two methods are open to us which may be used according to circumstances and environment. The first, namely, by vaginal plugging, is simple, easy to carry out, and well suited to the busy man in family practice. The second, immediate anæsthesiation, instrumental dilatation and evacuation of the uterus with the finger and flushing curette, is more adapted to hospital practice, and to the man who is in the habit of performing vaginal operations. The first method can be carried out without anæsthesia. The instruments, etc., required are a Sim's speculum, a vulsellum forceps, and a pair of long narrow uterine dressing forceps, and a strip of iodoform gauze three inches wide and three yards long which has been kept soaking in lysol solution. (Dry iodoform gauze is not aseptic.) The vulva and vagina must be cleansed, and the cervix seized with a tenaculum through a speculum, and one end of the gauze packed into the lower

uterine segment, and then the rest used to fill up the vagina. If the vagina is not well filled a few pledgets of absorbent wool soaked in lysol solution and squeezed dry may be used to complete the packing. A clean diaper should be placed on the vulva and the case left for about twelve hours, unless some reason arises for interference. The plug acts by causing uterine contractions, and in satisfactory cases the ovum will be found intact on the top of the plug when it is removed. If no contractions occur, the plug may be removed, the vagina recleansed, and a fresh plug inserted. In some cases, however, the finger may be used to complete the evacuation if the ovum has not come completely away.

If the second method is to be used, the instruments required are: a Sim's speculum, a vulsellum forceps, Hegar's dilators, a large blunt flushing curette, uterine dressing forceps, ovum forceps, and a strip of iodoform gauze ribbon. The patient is best placed in the lithotomy position, and, after the usual cleansing, the cervix is drawn down with the vulsellum, and dilated up to the size of the largest Hegar's dilator. Then the ovum may be detached with the finger in all directions and either squeezed out bimanually or removed with the ovum forceps. If it is much broken up, the flushing curette may be used to wash out the uterus and draw out any remnants. The operation is finished by plugging the uterus with the iodoform gauze, and using part of it to plug lightly the vagina. The plug is removed at the end of 24 hours, and afterwards no douching or other local treatment is necessary. The use of the curette for this purpose may be criticised, but it must be remembered that it is not recommended except to those who are in the habit of performing uterine operations, and it is not used at all with a dilated uncontracted uterus or after the tenth or twelfth week of pregnancy.

Perhaps the most difficult cases of abortion to treat successfully are those occurring after the tenth week of pregnancy—namely, three, four, or five months' abortions. The reason of the great difficulties sometimes met with in these cases is the inert condition of the uterus so often present. Uterine contractions may occur in these cases only at long intervals and then be weak in character. The result is that hæmorrhage may continue unchecked for many days or even weeks, and there arises a great danger of infection and decomposition of the uterine contents, to say nothing of the bloodless condition to which the patient may be brought. In such cases the use of the vaginal plug may be first recommended, and in them thorough packing of the lower uterine segment may be of great assistance. A longer piece of gauze may be necessary, and, if only three-yard lengths are carried, the second should be tied to the first

so as to make a continuous strip. Sometimes this treatment leads to good contractions and complete evacuation, but even if it does not, as a rule the result is some dilatation of the cervix. It is usually necessary to put two fingers into the uterus to clear out embryos of this age, and anaesthesia is advantageous. These operations are always tedious and difficult, as the embryo is likely to break up during removal. The head is the part which gives most difficulty on account of its size and uncollapsible character. The quickest manoeuvre is to puncture it with a pair of sharp-pointed scissors, so as to allow it to be flattened out with the fingers and so hooked through the cervix. The placenta may have to be removed piecemeal, and if hæmorrhage is profuse, the uterus should be tightly packed, taking care to fill up the fundus first with gauze.

In these abortions at the middle period of pregnancy, hæmorrhage or sepsis are the signs which demand interference; in their absence, or where hæmorrhage is slight, the cases do not require energetic treatment at all and may be left to nature.

A large proportion of the cases of abortion met with in practice are "incomplete," and they frequently present problems of great difficulty, especially with regard to diagnosis. The usual history is that hæmorrhage has occurred for many days or weeks, little or more, sometimes amounting to "flooding." If one or more menstrual periods had been missed before this bleeding began, an incomplete abortion is to be presumed. In some cases the embryo or a chorionic sac may have been seen, in which case the diagnosis is certain. It is permissible to treat some of these cases with full doses of ergot on an expectant plan, especially if the uterus appears not to be larger than normal. The assumption in such cases must be that the uterus is empty and that the bleeding is the result of simple congestion following subinvolution. If, however, there is any reason to suppose that any product of conception is retained, ergot is quite useless, as such products are always firmly adherent and no uterine contractions will detach them. In such cases the only treatment of any avail is dilatation of the uterus with Hegar's dilators and thorough curettage, first with a blunt wire curette. If very little tissue is removed by this, and no mass of any size can be felt in the uterus, a sharp curette should be used and the whole lining of the uterus cleared away. Any suspicious tissue removed should be preserved in 10 per cent. formalin in normal saline solution, for section cutting and microscopic diagnosis. In this way malignant growths such as chorion-epithelioma and carcinoma of the body of the uterus will be diagnosed at once and furnish timely indications for further more radical treatment. Curettage is a simple operation

in such cases, but is liable to be followed by smart hæmorrhage, which, however, can always be arrested by plugging the uterus. The operation must be aseptic, otherwise endometritis will follow.

It may be suggested that the small operations above described are difficult to carry out in a busy general practice. There is some truth in this, unless forethought is exercised and provision made for emergency operations of this kind. It would be a difficult matter to carry out these operations if everything necessary had to be got ready at a moment's notice; with a little thought and ingenuity, however, things may be so arranged that there is nothing to do but to boil the instruments and put the other things in a bag. Sterile swabs may be kept always ready by cutting up a number of squares of absorbent wool in spare time and keeping them in a glass jar soaking in lysol solution. These swabs may be found useful for other minor surgical emergencies. Iodoform gauze ribbon may also be kept in lysol solution. To carry these swabs and gauze to the patient a large bag made of double layers of face towelling, sewn on three sides, leaving one side open is very useful, and may be kept aseptic by preserving it in the lysol solution and boiling it occasionally if it becomes infected. It is better, and saves time, to boil the instruments at home, to pour off the water and run a little lysol solution over them, and then turn them out direct into the lysol-soaked bag along with the swabs and gauze. Carried in this way, the instruments need not be dried or touched until wanted for use, and being wet with lysol will not rust, a very important fact. When the swabs, gauze and instruments have been placed in the bag it should be rolled up, wrapped up in a square yard of jaconet or thin mackintosh, and then placed in the handbag. With swabs and gauze always kept ready in this manner, the time consumed in preparations is limited to that necessary for boiling the instruments.—*The Hospital*.

THERAPEUTICS.

Treatment of Neuralgia by Subcutaneous Injection of Chloroform.

S. O. GOLDAN (*New York Med. Jour.*, June 13, p. 1141).—The writer reports good results from the subcutaneous injection of chloroform in chronic intractable neuralgia. From 2 to 10 minims of pure chloroform are injected into the painful area with an ordinary hypodermic syringe. Considerable swelling and redness are produced which may seem alarming, and some patients will not submit to the treatment. Seven cases of facial neuralgia were treated; in 3 the supraorbital nerve was affected,

in 1 the infraorbital nerve, and in 3 the infraorbital and maxillary branches combined. The pain almost completely ceased at once. From 2 to 5 drops of chloroform were injected in 5 or 6 places about $\frac{1}{4}$ to 1 in. apart on the painful area. Three cases of brachial neuralgia were treated successfully by fairly deep, as well as superficial injections. In seven cases of intercostal neuralgia immediate relief was given. The injections were made into the skin as well as deeply between the ribs. Five cases of sciatica were treated; in 3 repeated injections were required but complete cure resulted. One patient, though benefitted, refused further injections. One patient was not benefitted and, indeed, was temporarily made worse, but there was not merely sciatica but also phlebitis of the lower limbs. The sciatica was greatly improved as a result of improvement of the phlebitis, which took place under treatment with the waters of Bagnoles de l'Orne, France. The writer has also obtained good results from this treatment in lumbago. Patients have come to him almost creeping, and within half an hour have walked away free from the pain and erect. The writer attributes the benefit to the inflammatory reaction produced by chloroform, which determines a new supply of blood to the nerve filaments of the painful part. Neuralgia has been described as the cry of the nerves for blood.—*The Medical Review*.

Plaster-of-Paris in the Local Treatment of Small-pox.

Zdanovitch (*La Semaine Médicale*, July 15, p. 343).—The writer, after an experience of 450 cases of small-pox in hospital and private practice, considers that plaster-of-Paris is the best local application, especially in the more severe forms accompanied by abundant suppuration. The patient is put to bed entirely naked, and the skin is covered with a thick layer of freshly ground dry plaster. Should any oozing take place the spot is again powdered. The patient is covered with light bed clothes, even a sheet being sufficient in warm weather. Under this treatment the repulsive odour rapidly disappears. The plaster, in consequence of its affinity for water, absorbs the pus and hinders its decomposition, and also forms a good dressing for deep folds of skin. It also relieves itching and prevents the deep pitting or even extensive cicatrices which are apt to occur in cases of confluent small-pox. It has the further advantage of being inexpensive—a matter of some importance in epidemics affecting a poor community. In cases treated by this method the secondary fever or fever of suppuration often does not occur at all, the pus being so thoroughly absorbed by the plaster that there is little opportunity for the products of its decomposition affecting the system. The plaster has

no irritating effect on the skin. One patient complained only of smarting when it was applied to an exposed granulating surface:—*The Medical Review*.

Valisan—A New Sedative.

By

DR. MAEDAR, of the Municipal Hospital of Charlottenburg.

A DESIRE has been freely expressed for a remedy having a favourable influence in neurasthenia, owing to the frequency of this disease, and therefore every new remedy which, after long experience, has been found to be satisfactory is of general interest. The Chemische Fabrik auf Actien (vormals E. Schering), of Berlin, have now introduced a combination of bromine and bornyval under the name of Valisan for administration in neurasthenia and allied diseases.

Bornyval (isovalerianic-acid-bornyl-ester) contains the effective part of valerianate, namely, bornyval (64.3 per cent.), and isovalerianic acid (35.7 per cent.) and has proved to be a good remedy in nervous conditions. To increase the effect of bornyval it has been chemically bound with bromine. This combination (Valisan) contains 25.2 per cent. bromine, 48.3 per cent. bornyval, and 26.5 isovalerianic acid.

The remedy has been tried at the Internal Department of the Municipal Hospital at Charlottenburg for twelve months in a great number of cases, and its efficacy has been thoroughly tested. It was given exclusively to patients with general nervous troubles, and it proved to be a most effective sedative. Mental and physical weakness, insomnia, headache, &c., were all cured or improved after varying periods; and, although the remedy has no hypnotic power, it possesses a quietening influence in a high degree. Apart from its contents of bromine, Valisan has the special advantage over ordinary bornyval or other valerian preparations of a mild taste and an agreeable aromatic smell, and on this account it was preferred by patients. It was found by the medical attendants to be much more digestible than the ordinary bornyval.

Valisan can be obtained in gelatine pearls, and even in large doses of 150 grs. is well borne:—*The Therapist*.

Stovain: Its Changes in the Nervous System after Spinal Anæsthesia.

Dr. SPIELMEYER examined the central nervous system in thirteen subjects after spinal anæsthesia. The death of the patients was due to peritonitis, sepsis, or cachexia in from two days to a week, after the

injection, except one case in which the anaesthesia was responsible, the patient dying in coma forty-eight hours after the operation.

The neurohistologic findings in these cases, and in considerable experimental research, showed degeneration in the motor ganglion cells of the anterior horn of the spinal cord. These motor elements seem to be especially susceptible to the action of stovain. The changes were observed in this class of cells high in the neck as well as low down, and in some the changes seemed to be irreparable. He adds that none of these changes were discovered in the cases in which the dose of 0.07 Gm. (0.9 grains) stovain had not been surpassed. In the fatal case 0.12 Gm. (1.7 grains) stovain had been injected; paralysis of the respiration was the first sign of trouble. (Munchener medizinische Wochenschrift, August 4, 1908)—*Monthly Cyclopaedia and Medical Bulletin*.

OPHTHALMOLOGY.

Glaucoma: Its Symptoms, Diagnosis and Treatment.*

BY CHARLES W. KINNEY, M. D.

The name *glaucoma* was given to this affection because of the greenish reflex seen through the partially dilated pupil. It was supposed to be an affection of the vitreous humor, retina and optic nerve. The true nature of this disease was not recognized until the invention of the ophthalmoscope by HELMHOLTZ, in 1851. VON GRAEFÉ was the first to advance the modern theory of glaucoma and to devise an operation for the relief and cure of what had been an incurable affection of the eye.

In glaucoma, there is an increased tension or hardness of the eyeball, due to hypersecretion or retention of the intraocular fluids. Of the many theories advanced to explain the cause of this condition, none is entirely satisfactory, though each one probably contains some truth. The theory of PRIESTLEY SMITH, however, is the most plausible and satisfactory of any thus far offered. He claims that there is a narrowing or even an obliteration of the space between the edge or periphery of the lens and ciliary processes, due to enlargement of the lens in advanced age. This space, or Petit's canal, as it is called, is the route through which the fluids of the vitreous chamber pass to the canal of Schlemm. The canal of Schlemm is a circular canal or venous sinus, at the sclero-corneal junction, in the depth of the tissues. This canal communicates internally through the spaces of Fontana with the anterior chamber and externally with the scleral veins. Therefore, if Petit's canal is blocked, the increased pressure from behind will push the lens and iris forward and shut

* Read before the Richmond County Medical Society, November 11.

1908.]

off the canal of Schlemm. This prevents the interchange of fluids in the eyeball, thus causing glaucoma. Inflammatory conditions and injuries may cause narrowing of these canals and bring on an attack.

Glaucoma may be congenital or acquired.

The congenital form is characterized by dimness of vision, increased tension and very shallow anterior chamber. There is little, if any, pain or other marked symptom. This form of glaucoma usually goes on to a condition called buphthalmus—so called from its resemblance to a bull's eye—and is characterized by great enlargement and protrusion of the eyeball with thinning and stretching of the sclera, so that the pigment of the uveal tract shows through. At this stage the anterior chamber is greatly increased in depth, the iris tremulous, and the optic nerve markedly cupped. Eventually there is complete blindness.

The acquired form of glaucoma is either primary or secondary.

Primary glaucoma is that variety which arises without any apparent cause. There are certain predisposing factors in its production, however, which should not be passed unnoticed. Age is of great importance in this connection, as the condition is most frequent at the extremes of life. When discussing the congenital form, it was seen that it may date from birth or be even prenatal. In adult life it is extremely rare under 30 years of age. Although sex should not influence glaucoma to any extent, it is a fact that women are more frequently affected than men. Heredity also may have a slight influence, as shown by records of cases in which members of the same family, extending through several generations, have been affected. Eye strain is an important factor. About one-half of all cases of primary glaucoma occur in persons who have hyperopia and compound hyperopic astigmatism. In myopia of any amount it is extremely infrequent. Among the remaining predisposing causes are grief, loss of sleep, facial neuralgia, cold and circulatory disturbances. Rheumatism and gout have always occupied a prominent place in the etiology of glaucoma.

Secondary glaucoma always follows some pathological condition of the eye that results in obstruction of the angle of the anterior chamber, thus shutting off the canal of Schlemm and the interchange of the ocular fluids. Among the pathological conditions may be mentioned iritis, cyclitis, dislocation of the lens, intraocular tumors, retinal detachment and hæmorrhages.

Glaucoma is again divided into inflammatory and non-inflammatory. In the acute or inflammatory form there are certain premonitory symptoms, such as failure of accommodation, haziness of vision and rings or

halos around lights. This is followed by haziness of the cornea, a sluggish, dilated pupil and a slightly shallow anterior chamber, some headache and pain in and around the eye and, of course, some increase of tension. The symptom that should excite the most suspicion is rapid failure of accommodation, the patient suddenly being unable to read at all or with great effort. The duration of these premonitory symptoms varies from a few hours to two or three days. There may be several attacks, each one a little more severe than the previous one, and leaving the eye in a worse condition. There may be no premonitory stage—the so called *glaucoma fulminans*. It occurs much less frequently than the other varieties, and runs its course in a very short time. The attack is very acute, the symptoms much more severe, and blindness may follow in a few hours.

An attack of true glaucoma usually takes place at night. If there is rapid increase of tension, there is nausea and vomiting with violent neuralgic pains in and around the eye. This condition is often thought to be "grippe" or a "bilious" attack. The eye becomes very red and painful; there is profuse lachrymation; the cornea is steamy and anæsthetic, so much so that it can be touched without pain. The iris is dull and discolored; the pupil is partially or totally dilated, and through it is seen the peculiar greenish reflex which gives the disease its name. This acute attack may pass away in two or three days, but there is never complete remission of symptoms. Some visual defect always remains; the pupil is sluggish and the tension is still above normal. In the course of a few weeks or months there is another similar attack which may gradually subside, leaving the eye worse than before. These attacks then occur at shorter intervals, and if the eye is examined during a remission, the cornea and vitreous will be found to be cloudy, the optic nerve considerably cupped and atrophic, and the retinal arteries reduced almost to threads. In the later stages there are no remissions, and the severe symptoms become permanent, and the eye entirely blind. This condition is called absolute glaucoma. Later, there may be bulging of the sclera, ulceration of the cornea with such severe pain at times that the eye has to be enucleated. The tension throughout remains of almost stony hardness.

There is one form that may be called chronic glaucoma. This may develop from several mild acute attacks. There is hardly any pain, and the patient will be aware of its existence only after the vision has been greatly impaired or blindness has occurred.

Non-inflammatory or simple glaucoma was for a long time thought to be distinct from glaucoma. It was originally described by VON GRAEFE

under the name of amaurosis with excavation of the optic nerve. It is characterized by entire absence of inflammation or pain, the diagnosis being made by the increase in intraocular tension and ophthalmoscopic examination. The course is very slow, and its gravity may not be recognized by either the patient or the physician until it is well advanced. There are no prodromal symptoms, and the only complaint is an inability to perform close work. This condition increases until reading, writing or doing near work is impossible. This is thought to be due to the failure of vision incident to advancing age. The patient may consult refracting opticians and the true nature of the affection not be discovered. The lenses prescribed under these circumstances fail to retard the progress of the disease, and are of no value. The eye may appear normal. The cornea, aqueous and vitreous may be clear; the iris normal or nearly so; the pupil may be slightly dilated and sluggish in its action to light; the tension may or may not be increased, and if, increased, is not constant. It is only by comparison with the unaffected eye that the minor points are detected. By the ophthalmoscope alone can the true nature of the trouble be discovered and verified. In this form we find the typical cupping, excavation and changes in the optic nerve. Examination of the visual field shows contraction, and this is most marked on the nasal side. This form of glaucoma is chronic from the start, and at no time is there any inflammation or redness of the eye. As the disease progresses, the excavation of the optic nerve becomes deeper and deeper, until complete atrophy takes place. This atrophy extends to the blood vessels and coats of the eye; the field of vision becomes more and more contracted until complete blindness comes on. The chronic, non-inflammatory form begins as a unilateral affection, but it is not unusual for both eyes to become involved.

A few words in regard to the diagnosis. On account of its various forms, glaucoma is liable to be mistaken for a number of ocular affections. A distinction can usually be made by noting whether there is increased tension, pathological cupping of the optic nerve and pulsation of the retinal arteries. Either of these conditions may exist in connection with less serious diseases, but their combination is pathognomonic of glaucoma.

It is of great importance in eye cases to take the tension as a routine procedure. This is best done by palpating. All instruments devised for this purpose have been more or less a failure. The patient should be directed to look strongly downwards. The index fingers are then placed lightly upon the closed lids, just beneath the orbital arch, the other fingers resting upon the forehead or temple. Pressure is then made alternately

by the fingers, and the degree of tension estimated. Comparison should be made with the unaffected eye. For convenience and record, tension has been divided into three degrees: +1, +2, +3, varying from slight tension to stony hardness.

Iritis is a disease that is more frequently confused with glaucoma than any other affection. In iritis there is generally a small pupil, which may be irregular, especially when adhesions have formed between the posterior layer of the iris and the anterior capsule of the lens. The anterior chamber is of normal depth and the iris is more changed in color. In severe iritis, fibrinous exudates may be seen upon the anterior surface of the iris. The sclero-corneal margin is more red and injected in comparison with the rest of the eyeball. Photophobia is more marked. Examination of the cornea by oblique illumination will show dotted opacities upon its posterior layer. The history, age and course of the disease will aid in making a diagnosis. Most important is absence of increased tension.

Conjunctivitis is another disease which may be confused with acute glaucoma. Here, again, increased tension is absent. The cornea is clear, except in very severe purulent conjunctivitis; the anterior chamber is of normal depth, and the pupil reacts quickly and well. The iris is of normal color; the media are clear, and ophthalmoscopic examination shows the fundus to be normal. In conjunctivitis there is a mucopurulent discharge, which is very rare in glaucoma.

Atrophy of the optic nerve and cataract may be confused with simple non-inflammatory glaucoma. In optic atrophy there is no increase of tension, no pain or redness or other symptoms of glaucoma, except the dilated pupil and gradually failing vision. The reflex from the pupil is never of a greenish hue, and there is gradual concentric contraction of the visual field. In cataract there is a greenish reflex from the pupil under certain conditions, especially when the cataract begins in the centre of the lens. There is also a condition of sclerosis of the nucleus of the lens in old age that gives a greenish reflex. In this condition the pupil is always more or less dilated, making it more confusing. In cataract there is entire absence of all symptoms of glaucoma, except those mentioned, and the ophthalmoscope and oblique illumination show the opacities in the lens.

Presbyopia, or old sight, may be differentiated from failure of accommodation found in glaucoma by absence of all symptoms of the latter disease, and also by the fact that glasses give complete relief.

Glaucoma is a serious affection and never tends towards spontaneous recovery, but progresses towards incurable blindness.

The treatment is operative and non-operative.

As this paper is for the general practitioner, I shall advise only what to do and what *not* to do until the patient can be placed under the care of an oculist. In the first place, *never instil atropin in any diseased eye until absolutely certain that there is no increase of tension or other indication of glaucoma*; for if there is any tendency in that direction, the atropin dilates the pupil to its full extent, cutting off the anterior chamber and blocking the canal of Schlemm, thus making the condition much worse than before. It is in confusing glaucoma with iritis that this mistake is most frequently made.

Do not treat a case as supposed conjunctivitis until the pain becomes unbearable and the eye nearly blind before you discover that you have a case of glaucoma. Take the tension carefully and watch for other symptoms.

In a case of suspected or well-marked glaucoma, use hot applications for 10 or 15 minutes every two hours, and instil one or two drops of a solution of muriate of pilocarpin, four grains to the ounce of water, every two or three hours; or use alone or in connection with the pilocarpin, one drop, every three or four hours, of a solution of eserine, one-half grain to the ounce of water. Massage of the eyeball, if the latter is not too tender, is sometimes of value. Morphine should be given to relieve the pain when it is very severe. Salicylate of soda and aspirin are of marked value in the early stages, especially in a rheumatic or gouty patient. The patient should be kept in bed. Unless this treatment gives relief in from a few hours to a day or two, according to the severity of the symptoms and failure of vision, an iridectomy should be done.

Iridectomy is the best mode of treatment, and the earlier it is performed the better and more lasting are its results. In the later stages, more relief is obtained by an iridectomy than by any other treatment. When the patient refuses an operation, the best that can be done is to continue the use of pilocarpin and eserine, in conjunction with hot application, treating the case according to the conditions as they arise.—*The Post-Graduate*.

DERMATOLOGY.

Vaccination Rashes.

In most cases vaccination has nothing to do with subsequent skin eruptions, although this truth is unfortunately not likely to commend

itself to the lay mind. Possible non-adventitious rashes may be divided into two groups. First, we have those arising from pure vaccine inoculation—secondary local eruptions of vaccinia occurring either before or after regular vesicle formation; in rare instances they may be generalised. Appearances of various forms merely due to irritation may also be noted. More important, from the point of view of prophylaxis, are the conditions arising from some admixture with the vaccine virus, either at the time of inoculation or secondarily after rupture of the vesicles. Impetigo and the lesions of tubercle or of syphilis are the three likely dangers in the former case. CARTER states that the inoculation of tubercle is impossible with glycerinated calf lymph—and infection with syphilis should also be impossible.

It must be remembered in this connection that the irritation of vaccination may determine the outbreak of a congenital syphilitic rash: syphilis cannot be charged to vaccination unless its eruption occurs about fifty days after the operation has taken place. Glycerination is supposed to obviate also all risk of introduction of active pyogenic organisms. SIR ALMROTH WRIGHT, however, found that vaccine from a calf whose resistance to staphylococcus he had raised by bacteriological methods, caused much less inflammation than the ordinary commercial article. This additional safeguard against sepsis, though, is clearly not very practicable. The occurrence of gangrene, erysipelas, or cellulitis from improper care after vesicular rupture is manifestly possible. The rashes remaining for consideration may, according to the view taken of their ætiology, be placed in either of the two main groups above indicated. The most common are roseola; a scarlatiniform or morbilliform erythema, as late as the eighteenth day; and a lichen, consisting of papules invading the whole body in successive crops, and generally showing at the end of the first week. Care in selecting lymph, asepsis, and cleanliness are the three essentials in prophylaxis.—*The Hospital*.

THE ANTISEPTIC.

DECEMBER, 1908.

The Pathogenesis of Anarchism.



HE outbreak of anarchical outrages in India is almost as great a calamity as the establishment of bubonic plague as an endemic disease in this country. To the pathologist both are interesting studies. The bacteriology of bubonic plague is not more interesting than the psycho-pathology of anarchism. The official mind is easily satisfied. It sums up the causes of anarchism in India in one word—*unrest*. And "*unrest*," according to the official is synonymous with *sedition*. That may be the official way of looking at anarchism. It certainly is not the scientific way.

The growth of anarchism on this continent of Asia is a comparatively recent event. It is true that the Ishmaelites who flourished in Asia in the eleventh century had a sort of family resemblance to the modern anarchists. But evidence is wanting to connect the anarchists as we know them at the present time with the Ishmaelites of old. We are inclined to think that the modern anarchist is the product of present-day civilization. One striking feature of modern civilized life is the rapid increase in the number of insane people. And in this essentially neuropathic age anarchism has shown itself as one variety of mental derangement. As a rule anarchists are men of acute sensibility and disordered imagination. They have been influenced to an enormous degree by the sophisms spread by writers on property, religion, government and capital. One of the most noticeable characteristics of the anarchist mind is its general exaltation. We know that this is also one of the characteristic symptoms of general paralysis of the insane. The anarchist considers that avenging of offences and preventing iniquitous acts are his special province, and he acts on the insane idea that the Citizen is entitled to substitute himself for the State. He constitutes himself the supreme authority in the State, the dispenser of justice and the avenger of the oppressed. But it is a mistake to suppose that his insane actions have any foundation in altruistic ideas. The dominant desires in the anarchist mind are the

longing for absolute equality and the thirst for material satisfaction. The desire for absolute equality has been noticed in anarchists of all countries. We are told by eminent historians that the guiding principle of the Jacobins and French anarchists was political equality. That is also the ideal of Nihilists who are anarchists of a particular type. And the Bengal anarchists appear to be no exception to the rule. Political equality seems to be their object too. But with them political equality is inextricably mixed up with racial equality. And the not infrequent public assertion of racial superiority by the less thoughtful among the European residents in this country over their Indian fellow-citizens may not unnaturally have fanned into flame the dormant desire for absolute equality lurking in the minds of the potential anarchists of Bengal. Disappointed ambitions form another potent factor in the development of anarchists. As Louis Proal says: "The man with a university degree, who fails to obtain in society the brilliant situation and the material satisfaction on which he had counted, proceeds to curse society. Persons who occupy a social rank for which they were not intended, those who have failed in life, the incapable, and those whose ambitions have been disappointed, detest society, because it does not offer them a situation in keeping with their demands."

Increasing poverty of the many and the growing opulence of the few, brought about by the unequal distribution of wealth, have considerably helped the rapid growth of the doctrines of socialism, communism and anarchism. The socialists have propounded the theory that people have a right to what they want. The anarchists proceed to put that theory in practice. It is extreme poverty that has given rise to the desire on the part of communists and anarchists to put an end to private property.

Two prominent characteristics of the fully developed anarchist are—(1) fanaticism; (2) vanity. We have all read in newspapers, at some time or other, of the quiet and easy way in which some anarchist or other stood his trial, and of the great firmness displayed by him at the hour of his execution. This is explained by the fanaticism that animates all anarchists. And for vanity—are not all anarchists vain? They like to exaggerate their crimes, and they are proud that every detail concerning them is published in the newspapers. The notoriety and public advertisement they receive as the result of their terrible crimes exhilarates and intoxicates them.

Anarchism is, undoubtedly, a state of defective inhibition, and is found usually in individuals with a highly nervous diathesis and disposition, combined with weak nutritive energy. The nervous excitements and