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No. XXXVII.—JANUARY, 1873.

ORIGINAL ESSAYS.

ART. I.—*Notes, theoretical and practical, on Niemeyer's Pamphlet entitled 'On the symptomatic treatment of Cholera.'* By GEORGE SMITH, M. D., Physician to the General Hospital, &c.

THIS pamphlet, on the symptomatic treatment of cholera with special reference to the intestinal lesion, written by the late Professor Niemeyer, though not propounding new ideas upon that important subject, is yet one, which from the prominence it gives to the pathological and therapeutical significance of the intestinal lesion deserves an attentive perusal.

The theory of a specific virus in cholera infecting the blood primarily and running a course similar to that of the blood poison of small pox, measles, scarlatina and diphtheria, though held by a majority of the profession, is one which is not apparently gaining fresh ground even if it be holding the ground already gained. On the contrary the theory that cholera is primarily a specific disease of the mucous membrane of the intestinal canal and that blood infection is a secondary process seems to be gradually commending itself to professional acceptance.

The symptoms of cholera may be explained upon either theory. In this respect the supporter of a primary blood-

infection has no advantage over the advocate of a primary bowel-disease.

Inasmuch, however, as theories more or less influence practice, it is probable that to the adherent of the former view the cure of cholera by remedial means will appear an object more desirable than attainable, whilst to the advocate of the latter view it will present itself as an object not only attainable but likely some day or other to be attained.

Some years ago (1848-49) Mr. Snow advanced the view that cholera is a disease exclusively of the gastro-intestinal canal; that the primary lesion is confined to a portion of that tract; and that the mucous membrane of the bowel furnishes the structure in connection with which the virus is manifested and multiplied.

Mr. Simon, one of the most cautious and logical of English pathologists, in his report on Public Health for 1866 concludes a fair and closely reasoned enquiry with the following sentences:

"In the present state of knowledge, then, I do not find it proven, nor do I see any theoretical convenience in taking for granted that cholera begins as an active blood-change capable of producing primary collapse. The facts so far as I know them, can all be reconciled with the belief that cholera begins as bowel-disease, producible by direct contagion without even a passive intervention of the blood, and that all asphyctic phenomena of the disease are supervenient sympathetic phenomena. That, so far as they are facts of cardiac paralysis and arterial contraction, they may be attributed to nervous sympathy between bowels and circulatory system without reference to the greater or less humoral effect of the coincident flux from the bowels, is at present a tenable view. At the same time, I hesitate to accept as proven that cholera collapse is independent of humoral sympathy. That it may often be apparently so is, no doubt, well shown by the statements I have quoted from Dr. Goldbaum and others. But it must be remembered that in those comparative statements two most important variables are not taken into account. First, there is the varied rapidity of the local morbid process—a very considerable range of difference; and it is imaginable that the power of the intestinal flux to produce collapse may vary with the rapidity, rather than with the mere degree, in which it tends to inspissate the blood. Secondly, there is the varying susceptibility of the individual patient; and that this has range

enough to account for very considerable differences of manifestation in the functions concerned in collapse will be evident to any one who has attentively studied the very kindred subject of febrile rigors. Indeed, the power of both the variables in question may be illustrated from that analogy; for all observers know how essentially the rapidity of the thermal rise is the determining condition for the rigor; and all equally know how one patient suffers rigor to the very verge of death from influences which would not appreciably disturb another one.

"In questioning the fact of a primary blood-poisoning in cholera, I, of course, do not intend to deny that the blood during cholera is poisoned. From our earliest knowledge of the disease it has been on record that, when pregnant women have cholera, the intra-uterine offspring almost invariably dies; and more recently, in proportion as the anatomy of the disease has got to be better studied, cases have accumulated, giving detailed evidence in support of an opinion which had from the first been entertained, that the infant in such cases dies of true choleraic infection. Waiving particular reference to earlier cases of this sort (for which see, for instance, Phœbus, 1833, op. cit § 51* and Bull, 1856, in the famous Bavarian report), I may quote some statements made by Dr. Goldbaum in the report to which I have already referred. In the three last epidemics, he says he has carefully anatomized twenty-two such infants, and never failed to find appearances which, collectively, he deems characteristic of cholera. 'In the stomach and upper part of the small intestines always there was a fluid like rice-water, sometimes a thick mass, consisting of exfoliated bowel epithelium; the heart was always ecchymosed; at the back of the tongue there were swollen papillæ, as there are in greater degree in adult cholera corpses; and in the kidney the yellowish cortex contrasted strongly with the more blood-holding medullary substance.' It may, I think, be assumed for certain that the death of the fetus is death by cholera, and that the fetus is infected through its blood. And since its blood is a mere derivative of the mother's blood, the fact seems to be beyond dispute that the mother's blood had cholera contagium in it. In relation to our main argument, however, the question is virtually unchanged. Is there any

* Among the cases given in Phœbus's work is one where the infant was not actually born dead, but died an hour afterwards with all symptoms of the epidemic disease.

reason to suppose that the cholera contagium in the mother's blood was not a secondary product of disease—was not let into her circulation from the ferment-seething interior of her bowels? In this point of view the case may be usefully illustrated by another and closely kindred fact. Dr. Thudichum (see p. 477, *Ninth report on Public Health*, 1867) has made the important observation, that sometimes in cholera the blood, like the rice-water of the intestinal canal, contains butyric acid. He does not believe that this poisonous product of fermentation is primarily formed in the blood; he believes that it is only to be found there when, after collapse, absorption from the bowels has recommenced, and when evidently the presence of that and other like matters in the blood can be interpreted as a fact of secondary infection from the bowel."

Mr. Simon does not deny that the blood may serve as a medium of transmitting the virus to the seat of its morbid manifestation and multiplication, namely, the intestinal canal, but he holds that such a channel of transmission is not necessitated by the facts of the case; nor does he deny that the blood is infected, he only regards this infection as a secondary process, resulting from absorption from the diseased surface of the bowel. What he maintains is, that present known facts point to the conclusion that cholera does not commence as an *active blood-change* but as an *active bowel-disease*.

Niemeyer holds firmly by the opinion that the intestinal is the primary lesion in cholera, and upon that view assumed to be correct, he bases his recommendations touching the symptomatic treatment of the disease.

According to this theory cholera may be defined to be a more or less intense, more or less diffused, more or less rapid catarrhal inflammation* of the gastro-intestinal mucous membrane the result of a specific virus *Cholérine*.

The pathological and therapeutic importance of recognizing the intestinal lesion becomes apparent, when, in the acknowledged absence of a specific remedy, we come to decide upon the rational treatment of the disease. If Simon and Niemeyer be correct in their opinion the treatment of the local lesion becomes our primary and pressing duty, for with such views theory must guide practice.

As practical men, familiar with the disease, we may be allowed to sift the matter a little. Some light may be

* At times catarrho-croaspeus inflammation.

thrown upon the subject by a study of those milder forms of cholera, commonly but improperly called choleraic diarrhoea; of those typical cases of cholera which end favorably after passing through the stages of premonitory diarrhoea, of pronounced disease including collapse and of reaction culminating in convalescence; of cases terminating fatally in the stage, let us say, of collapse; of the thermometric indications, and of the varied teachings of practical experience.

It is well known that heralding an epidemic of cholera and associated with it during its whole course there occur cases of diarrhoea of a peculiar character and of varying degrees of severity, some of which pass into the more severe forms of the disease, whilst others either cease spontaneously or are arrested by appropriate treatment. One feature characterizes all these varieties of the affection, namely, the presence of large liquid evacuations, occurring suddenly without obvious cause, and generally unattended with pain. These cases are examples of cholera, mild ones no doubt but still true examples of the disease, just as veritable instances as the milder cases of variola, scarlatina or measles are of these several affections. The proof of this fact rests on the recognized communicability of the dejections of these so-called choleraic diarrhoeal cases.

Most medical men recognize that diarrhoeal attacks of the type described can be arrested by suitable medical means, and nearly all are agreed upon this that the most effective means consist in the administration, speaking generally, of opium, calomel or stimulants in one or other of their many forms and combinations. Niemeyer's experience is decisive in favour of the power of remedies, when early given, to arrest cases of choleraic diarrhoea. In other words remedial agents arrest the milder forms of the poison-action and relieve the simpler stages of intestinal hyperæmia, however inefficient they may be in combating successfully the more pronounced stages of the disease. The facts here indicated point to the existence of a primary bowel, rather than to that of a primary blood-disease.

The severer stages of cholera are, if this view be correct, simply exaggerations of the same pathological processes with general symptoms proportioned to the extent, suddenness and severity of the intestinal lesion.

The rational treatment of the disease from this point of view should include remedies capable of combating catarrhal inflammation of mucous membranes, and means

calculated to rally the general system from the depressing effects of supervenient shock. Theory and therapeutics afford mutual help for "*naturam morborum remedia ostendunt.*"

If we note the details of a case of cholera which terminates in convalescence, we shall observe in the earlier stages of the attack the marked prominence of intestinal symptoms, and in the convalescent stage the equally marked absence of symptoms implying general infection of the blood. In many of these cases the transition from disease to comparative health is effected with a rapidity and completeness very unlike the tardy processes by which patients convalesce from blood diseases such as small-pox and scarlatina.

The tracings of the thermometer too are significant in cholera, pointing as they do to the presence of an active intestinal hyperæmia, the evidences of which, detected during life, may or may not disappear after death. In slight cases which do not run into asphyxia the axillary and rectal temperatures are, as a rule, normal, or only a little above the norm. When, however, the algide stage is developed "the temperature of internal parts, in cases which recover, is generally moderate, though sometimes rather high (in a case of Güterbock's it was 103.28° F.), and it is exceptional to find the temperature normal or diminished." Again, "In cases where death occurs in the asphyxiated stage, the temperatures in the vagina and rectum sometimes reach still higher degrees, (104° F.) or more, and in one case of Güterbock's even 108.32° F.", the surface temperature standing meanwhile at 92° F. or lower. With commencing re-action there is a slight fall of the *internal* and slight rise of the *external* temperature.

These facts seem to prove that the severity of the algide state is one of the standards by which to judge of the severity of the local inflammation. Hence arises a further indication of rational treatment, which may be formulated thus:—it is during collapse when the most strenuous efforts should be made for the subjugation of the intestinal inflammation, and it is to the thermometer we must chiefly look for evidence that the treatment is proving successful.*

With such thermometric and other facts before us we are

* Generally speaking in cholera, a fall of temperature accompanies profuse discharges, and a rise of temperature their cessation.

placed in a better position to appreciate the intensity of that intestinal lesion which is the "*fons et origo mali,*" and in a better position also to weigh the importance of the local as compared with the general symptoms. Whilst the non-professional eye is intent upon the visible signs of the malady, the professional eye scrutinizes these, chiefly in order to estimate the extent and severity of the unseen lesion.

Again, if we follow to the post-mortem room a case of cholera which has terminated fatally, let us suppose in the algide stage, the truth will come home to us very forcibly how secondary as regards pathological importance the conditions of congested brain, heart, lungs, liver, and kidneys are, compared with the peculiar and significant lesions revealed in the mucous membrane of the gastro-intestinal canal. The principal lesions are as follows: congestion and ecchymosis of the gastric mucous membrane and of the mucous membrane of the ilium, more distinctly marked as we approach the ileo-cæcal valve; enlargement of the vesicular glands and follicles, of Peyer's patches and of the mesenteric glands; grey exudation* on the surface of the mucous membrane; enlargement and packing of the tubular glands with thick white secretion; relaxation and œdema of the small intestine; detachment of the epithelium with elevations of it from the subjacent villi (Niemeyer), and transudates of the serum of the blood into the cavity of the bowel. In weighing the importance of these pathological appearances we must bear in mind the warning given by Niemeyer:—"In many cases the intestine appears of a pale color and presents neither vascularity nor ecchymosis. In such cases, however, the intestine contains a large amount of watery transudation, and as this must necessarily result from congested not from empty blood-vessels, we must regard the pale appearance of the mucous membrane as a post-mortem appearance. It is a constant occurrence to find that the mucous membranes, which, during life, were seen to be highly congested and discharging profusely, have become quite pale after death."

In concluding the extended account of the post mortem

* In the Cholera typhoid stage well marked diphtheritic inflammations are observed. "This secondary diphtheritis," says Niemeyer, "is not limited to the small intestine, but has often extended to the colon." Diphtheritic inflammation is also seen at times in the gall-bladder, vulva, vagina and kidneys.

appearances in cholera given in the 8th Edition of his "Lehrbuch der speciellen Pathologie und Therapie" Niemeyer observes:—"The characteristic changes then to be seen in the body, when death takes place from cholera at the height of the disease, are chiefly the remains of an extensive catarrh of the intestines combined with loss of epithelium and copious transudation, thickening of the blood to a considerable degree, and marked venous congestion of the kidneys."

Professor Rindfleisch of Bonn takes a similar view of these morbid phenomena. In treating of catarrh of mucous membranes he lays it down that catarrh means increased secretion, and that hyperæmia, the anatomical basis of catarrh, is the cause of the increased secretion. He points out also the essentially glandular character of the mucous membrane of the intestinal canal, as well as its peculiar anatomical structure which permits of free osmic currents between the blood and the contents of the bowels. He calls attention also to the readiness with which the capillaries become congested, and to the marked effect which contractions of the bowel have, in health, in maintaining by their pressure the necessary congestion of the mucous surface required for physiological ends; a congestion much increased during cholera, when, instead of gentle vermicular contractions we have agonizing spasms. He also alludes to the 'flayed' condition of the mucous membrane after cholera, though 'scalded' would have been a more significantly expressive term.

From these post-mortem appearances there emerges another indication of rational treatment, which may be expressed thus:—remedial means which have a tendency to irritate the mucous membrane should be avoided on the ground of the present and prospective injury which must result from their administration. Cholera rarely leaves the mucous membrane permanently injured in cases where the patient has recovered without treatment.

An incidental proof of the importance of the local lesion is afforded by the results of saline injections into the veins; these injections succeed to a remarkable extent in removing the general symptoms of cholera, including collapse, whilst they signally fail in saving life in consequence of their powerlessness against the local lesion. They further prove the presence of the humoral element in the causation of collapse, other facts showing the nervous. If a remedy against

the local action as efficient as saline injections against the general symptoms were discovered, cholera would soon cease to be an opprobrium of medical science. Why despair of such a discovery?

Cholera is a specific febrile disease, in which, in consequence principally of the suddenness, extent and severity of the local hyperæmia and resulting shock of the nerve centres, the ordinary course and phenomena of fever undergo modification. The principal phenomena of cholera, when the febrile action is at its height and when the local lesion is in its most active state, may be approximately indicated thus:—the local lesion induces in the cerebro-spinal nerve centres a state of shock more or less grave, more or less prolonged, the effects of which are manifested in the functions of the circulatory, respiratory, muscular and nervous systems, in the form of paresis more or less marked of the vaso-motor, and trophic nerves, colligated with physical changes of an extensive character.

Paresis of the vaso-motor system—complete paresis is death—is at times expressed by abnormal dilatation, at times by abnormal constriction of vessels, by spasmodic contraction of the ducts of glands and of the muscles of hollow viscera. These phenomena are illustrated in cholera in the congestion of the bowel and nerve centres, in the frequent congestion of the forehead and precordia, in the spasm of the systemic and pulmonic vessels, in the cramps of the stomach and bowels, in the contraction of the bladder, and in the closure of the efferent bile duct.

In cholera the implication of the trophic nerve centres is manifested by development of heat at the seat of the local lesion, by the production of cold generally,* by abnormal impressions of temperature, as of heat from the ice-cold skin, by the active generation in the bowel of specific bioplasm, by vital changes in the blood and tissues, and, generally, by the arrest of evolution and the progress of involution of the

* Traube and Laycock maintain that there is a moderating centre of heat in the medulla oblongata in special relation with the vagus system. Section of the medulla oblongata at its junction with the pons varolii has been followed by intense febrile symptoms. The production of coolness, says Dr. Laycock, is as much a function of the regulative centre as of warmth. (See Dr. Laycock's instructive lectures on the influence of the nervous system on diseases of the organs and tissues, especially Lecture 4.—*Medical Times and Gazette*, July 22nd, 1871.) Is the implication of the Medulla oblongata further shown by the fact that, on recovery from collapse albumen appears in the urine, and later still sugar?

tissues. The cramps of the voluntary muscles,* the broken voice and general muscular debility show the implication of the motor-centres, whilst, synchronous with these phenomena, are to be observed those remarkable physical changes due to absorption inverted†, secretions arrested, excretions retained, transudations (by bowel and skin) increased, and general de-hydration of tissues. In consequence of these changes the blood becomes altered physically, and receives depraved matter from the tissues as well as virus from the intestinal canal, besides retaining in its current the toxic elements of suppressed secretions. Extreme as this condition is and hopeless as it appears to be to the on-looker, yet we know from experience that the disease has a definite course to run, and that *nearest to death is often nearest also to recovery*. If the local action continues, the shock is prolonged and the patient succumbs; if the local affection ceases, the inhibitory action subsides along with the shock, and the functions of the body, often in a marvellously short time, are restored to the normal state.

It has been said that the collapse of cholera is not identical with any of the ordinary forms of collapse which come under the observation of the physician or surgeon. This statement is only correct in part. "I have seen people," says Dr. Goodeve, "under the influence of malarial poison in Calcutta lie for hours as cold, and pulseless, and as embarrassed in the breathing, as in cholera." Again, the same author states "it must be granted that symptoms similar to collapse may be produced by poisons without any purging." The system has not distinct sets of signs by which to express shock according to the differences of causation by which that shock is produced. The difference then will be found to be, principally though not entirely, one of degree rather than of kind.

The collapse of cholera has two prime elements, a nervous and a humoral; these elements may exist separately or combined in various proportions. In cases where the patients die *comme foudroyés* the collapse must be of the former description; in cases where the patient falls from the stool-pan dead after filling the vessel with rice-water evacuation, the

* Cramps in Cholera are often excito-motor from the state of the local lesion and from irritating dejecta in the bowel.

† i. e. absorption from the tissues to the blood instead of from the blood to the tissues.

collapse is principally of the latter; in a third class the nervous collapse is modified by loss of the constituents of the blood, and resembles those cases of shock where the nervous symptoms are aggravated by free hæmorrhage. The cold surface, feeble heart, embarrassed respiration and physical prostration are common to all.

Dr. G. Johnson maintains that the collapse of cholera is dependent, not upon nervous or humoral shock, but upon a mechanical cause due to spasm of the minute arteries of the lung, and he appeals to the symptoms during life and to post mortem appearances in support of his views. The spasm referred to is said to be caused by poisoned blood. Spasm of the pulmonary arterioles no doubt takes place as part of that general spasm which has already been referred to, and it is possible that the peculiar condition of the blood may increase the constriction of these vessels still more; but it is obvious, on the one hand, that the spasm is not sufficient to arrest entirely the circulation, and, on the other, that spasm is relaxed when collapse comes to an end before any change in the physical characters of the blood can have taken place. The latter fact points to a nervous origin of the spasm rather than to a constriction of the vessels the result of the irritation of altered blood. Moreover, collapse is a variable condition, it increases and diminishes in severity, it disappears and returns, and these facts point to a nervous source of the inhibitory influence. The fact also that the foetus in utero may suffer from cholera collapse, although its pulmonary system is undeveloped, shows that the proximate cause of collapse, as indicated by Dr. Johnson, though an adjuvant cannot be the actual determining cause of the phenomena.

Again, though it be true that the lungs after death often show the characteristic anemia described by Dr. Johnson, along with congestion of the right side of the heart, yet experience in India teaches us that this pathological state is not universal, for the cases are by no means rare in which more or less general congestion of both lungs is observed,* and Dr. Woodman (London Hospital Reports, 1866) who gives the

* Out of 64 cases recorded by Dr. Macnamara of death during collapse, the lungs were found congested in 36. Distended heart (right side) is not detected during life by percussion in cases of cholera.

Dr. Fawcus as the result of post-mortems, made a few minutes after the death of the patients, states that there is no reason to suppose that there has been obstruction in the lungs; he also remarks "we have no evidence in the bodies of those just dead from cholera, that the right side of the heart contains more blood than the left."

post-mortem appearances in 14 cases of death in the stage of collapse, records that in two instances both lungs were collapsed and anemic, in one the anemic collapse was confined to one lung, in two cases there was anemia of the apices and congestion of the bases, and in the remaining nine there existed *congestion of the lungs*. In the two cases in which both lungs showed genuine collapse, *one had the right chambers almost empty, and the other had both sides of the heart full.*

According to the view advocated in this paper collapse is principally nervous partly humoral, and recovery from it must begin in the bowel and be transmitted to the lung and heart through the great nerve-centres. Relief, not cure of the collapse, follows the cold douche and saline injections into the veins, because these means, potent in stimulating the nerve-centres of lung and heart action, are powerless in removing the determining cause of the condition, namely, the bowel-lesion.

A few words more on collapse. Collapse depends primarily upon the local lesion, which is an active hyperæmia, and the thermometer proves that the internal temperature falls with free discharges from the bowels. These discharges are spoliative, but at the same time they diminish the local congestion, hence the mingled danger and value of intestinal transudation during collapse. With arrested discharges the local hyperæmia becomes aggravated and collapse deepens; with subsidence of the local action ensue transudation and diminution of shock. Collapse can be entirely removed, for the time being, by warm saline injections into the veins, an interesting fact to which too much attention cannot be paid.

Why does collapse return in the majority of cases in which saline injections have been used? Not, I imagine, because a mechanical constriction at the lungs recurs from poisoned blood, but because the local lesion, unrelieved by the treatment continues and reproduces shock as already explained.

We can see why opium, which arrests transudation, should be injurious in collapse, inasmuch as it directly aggravates the local lesion by preventing that relief to the congestion which the discharge effects, proving the correctness of the opinion that the intestinal discharges are, within reasonable bounds curative as well as spoliative. These discharges can hardly be called eliminative in the ordinary acceptation of the term, for they do not free the system from the virus or initiate recovery; recovery begins with the diminution

of the local congestion, and along with that diminution come lessened shock and diminished transudation from the affected surface.*

During convalescence the patient continues to pass stools containing virus capable of poisoning others, though no longer capable of poisoning himself. The morbid protoplasm gradually loses its pathological and regains its physiological powers.

Collapse is not relieved by opium or by astringent mixtures, neither is it relieved by the free use of stimulants (diffusible perhaps excepted), because the alcoholic stimulant effects more injury by aggravating the local action than good by opposing the systemic shock.

During collapse the patient lies with his heart's action and respiration at their minimum, a state of morbid hybernation, as Mr. French regards it,† though he fails to prove its analogy with true hybernation.

When collapse ends in death there is generally an antecedent cessation of the more prominent symptoms; the internal temperature rises, cutaneous and pulmonic spasm ceases, and the surface frequently becomes plump and rounded. Soon after death muscular contractions of a remarkable kind occasionally take place; these are seen most distinctly in young plethoric European soldiers after death from spasmodic cholera, and simultaneously with these phenomena a rise takes place in the surface temperature and passage of blood into the cutaneous vessels, so that blood flows on making the preliminary incisions at the post-mortem examination. Mr. French advances these facts as illustrations of Dr. M. Hall's law that "*the quantity of the respiration is inversely as the degree of the irritability of the muscular fibre*" in other words, and as applied to cholera, the greater the collapse the greater the muscular irritability. Experience, however, proves that cholera collapse is not marked by special muscular irritability, and post-mortem contractions show that irritability of the muscles arises from causes operating in the muscular fibre itself, causes independent alike of the nervous and respiratory processes.

(To be continued.)

* It is probable that after deep collapse absorption of the specific virus into the system takes place; if so, then subsequent transudations may be partly eliminative.

† Vide paper "On the probable cause of the post-mortem muscular contractions in cholera" by J. French, F. R. C. S., (Med. T. and G. June 17, 1871.)

ART. II.—*Fatty Tumour, recorded by Assistant Surgeon W. E. JOHNSON, M. D., and forwarded by Surgeon Major W. J. VANSOMEREN, M. D.*

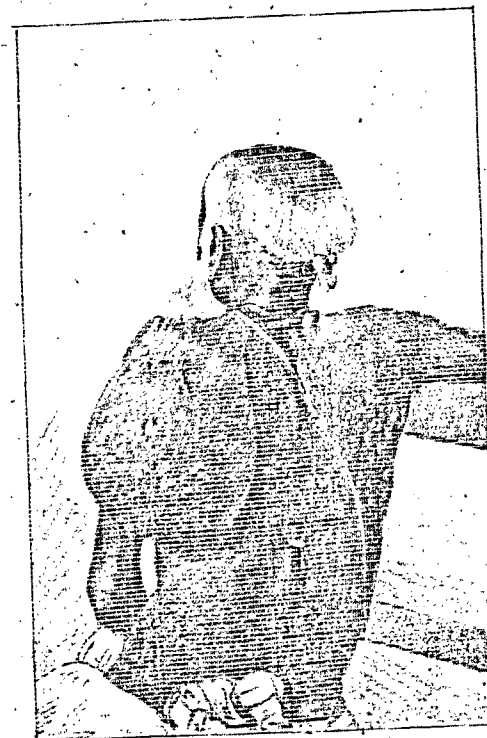
Allaguppa Charry, æt 60 years, male, Malabar, admitted 6th November 1872. Patient states that, about ten years ago, a small round and hard tumour appeared on the back of left shoulder. From the first it was immovably attached at its base over the shoulder blade. It gradually, as years advanced, grew larger, softer and pedunculated. Found no inconvenience from it, except from its weight. On its under surface a small abraded part, a little larger than a rupee, was formed by the constant friction against the surface of the body.

Tumour felt soft and gave the sensation of contained fluid. On the anterior surface of the shoulder, stretching from the pedicle of the tumour forwards, and downwards slightly, on the chest, were three large veins having a varicose appearance. These veins at first sight might be mistaken for keloid, but careful examination showed their true nature. When the pedicle of the tumour at the origin of the veins was pressed upon, the veins emptied themselves, and were immediately refilled upon removal of the pressure.

On the 10th November, the tumour was removed by Dr. vanSomeren, assisted by Assistant Surgeon Brockman.

The following were the steps of the operation :—

A semi-circular flap was taken from the upper part of the pedicle, and partly from the upper surface of the tumour ;—this flap was formed of skin only. The two ends of flap were united by a semi-circular incision around the under surface of the pedicle. The pedicle was then transfixcd by a needle passing backwards and slightly downwards, and over this a figure of eight suture was applied to embrace both halves of pedicle—thus hæmorrhage was completely controlled. The tumour was then removed by a scalpel close to the needle. Two small arteries caused a little bleeding, but these were at once ligatured. The needle was now removed as not required. The surface laid bare was washed with Carbolic acid lotion, and *eight* sutures (silver wire) were applied to retain the flaps in position, and the whole dressed with Carbolic acid lotion and antiseptic gauze.



The tumour weighed *six* and *half* pounds, and on section showed its fatty nature.

November 12th.—Wound looking very well. But little discharge coming away. Dressed as before.

13th.—One suture has ulcerated out, the wound looking very well. Patient's general health improving. Has a slight cough this morning.

Ordered No. 20 (Expectorant Mixture.)

16th.—To-day *six* sutures were removed, the other two having worked themselves out; adhesion has taken place at all parts except where the ligatures were, these having not as yet ulcerated away. His cough is very much better.

Omit No. 20, Ordered No. 36.

22nd.—A little ulceration below acromion process;—other parts of wound healing.

Cont. No. 36.

Strap and antiseptic dressing,—and pinion left arm.

25th.—Wound healing but rather slowly—its edges are brought nearer together by raising the arm, and as this would facilitate its healing, the arm was retained by bandages in that position.

Cont. No. 36.

Strap and antiseptic dressing.

December 1st.—Nearly well, but the patient cannot be persuaded to keep his arm in position and he unloosens the bandages,—he was therefore discharged and directed to attend the Dispensary as an out-patient.

Remarks by Dr. vanSomerén. A few points connected with this case demand notice:—

First.—The sense of fluctuation, mentioned by the reporter, certainly at first did suggest the idea of contained fluid, but it lacked that distinctiveness and peculiar impulse to the *tactus eruditus*, which are conclusive of the presence of liquid in a cyst. Before the operation, it was distinctly stated that the tumour was a fatty one.

Second.—After ablation of the tumour, two small arteries required ligature, and they were tied with the ordinary ligature thread. Both ends of each were cut off, but this is a procedure which I cannot sanction again. With carbolized catgut ligatures it may be allowable, but certainly is not with thread ligatures. The knots cannot fail to prove

a source of irritation, however much they may be saturated with Carbolic acid solution, and however carefully the wound may be dressed antiseptically. In the case under review, the healing process was certainly retarded, and one cause of retardation was the foreign bodies which I had left below the flap.

Third.—The position and size of the flap were such, as to render elevation of the arm the most favorable position for promoting union of the flap to its subjacent surface, and healing of its margins. This position, however, was trying and even intolerable to the patient, and that although a bandage was used to retain the arm in its proper place. Failure to carry out my wishes on this point served to protract the man's convalescence.

ART. III.—*Fever, its theory and treatment.—Concluded.* By Assistant Surgeon L. C. NANNEY, H. M.'s 3rd Regiment, P. L. I., Secunderabad.

In confirmation of the remarks I offered in the Journal for December, on this subject, I herewith append a limited number of the cases treated by me. Of these, six were cases in which Quinine having failed to produce the desired result, the Carbolic acid plan of treatment was resorted to. Twelve were treated throughout by Carbolic acid, with which are compared twelve treated by Quinine. It will be observed that in the last twelve the total quantity of Quinine administered amounted to 1,455 grains, whereas, in those treated by Carbolic acid 2,787 minims of the acid were required. Value of the Quinine Rupees 16-0-0; value of the Carbolic acid Rupees 1-0-0; representing a saving to Government of Rupees 15-0-0 in the treatment of twelve cases alone or 93.75 per cent. Taking into consideration the difficulty of procuring a sufficient quantity of Quinine, the employment of the Carbolic acid in such cases as these in question, would enable us to reserve our supplies of Quinine for cases of a different character, nor do I doubt, that in many forms of fever assuming a typhoid tendency, the Carbolic acid would prove a valuable remedy, and I am of opinion that the trial might be attempted with considerable probability of success.

Treated at the onset by Quinine; subsequently by Carbolic acid.

QUININE.							CARBOLIC ACID.				
Sex.	Age.	Disase.	Dose of drug.	Total quantity of drug administered.	How long under treatment.	Result.	Dose of drug.	Total quantity of drug administered.	How long under treatment.	Result.	REMARKS.
Male.	32	Febricula.	5 grs. ter die.	120 grs.	8 days.	Failed	5 minims ter die.	126 minims.	7 days.	Cured.	The acid was continued in most of the cases for two or three days after fever had ceased.
do.	42	do.	5 grs. ter die.	240 grs.	17 days.	do.	3 minims ter die.	51 minims.	6 days.	do.	
do.	27	do.	3 grs. ter die.	78 grs.	11 days.	do.	20 minims ter die.	360 minims.	6 days.	do.	
do.	32	do.	5 grs. ter die.	120 grs.	8 days.	do.	Varies from 5 to 10 minims.	324 minims.	7 days.	do.	
do.	33	do.	3 grs. ter die.	69 grs.	8 days.	do.	5 minims ter die.	99 minims.	6 days.	do.	
do.	34	do.	5 grs. ter die.	45 grs.	3 days.	do.	5 minims.	50 minims.	2 days.	do.	

Cases under Quinine treatment from the onset.

Sex.	Age.	Disease.	Dose of drug.	Total quantity of drug administered.	How long under treatment.	Result.	REMARKS.
Male.	46	Ague.	5 grains ter die.	105 grains.	10 days.	Cured.	The average number of days under treatment by Quinine was 11.75.
do.	25	do.	do.	135 do.	9 do.	do.	
do.	34	do.	do.	90 do.	19 do.	do.	
do.	21	do.	do.	60 do.	4 do.	do.	
do.	37	do.	do.	90 do.	13 do.	do.	
do.	26	Febricula.	do.	255 do.	17 do.	do.	
do.	24	Ague.	do.	90 do.	13 do.	do.	
do.	54	do.	do.	150 do.	10 do.	do.	
do.	34	do.	do.	195 do.	20 do.	do.	
do.	46	do.	do.	40 do.	3 do.	do.	
do.	34	do.	do.	125 do.	15 do.	do.	
do.	50	do.	do.	120 do.	8 do.	do.	

Cases under Carbolic acid treatment from the onset.

Sex.	Age.	Disease.	Dose of drug.	Total quantity of drug administered.	How long under treatment.	Result.	REMARKS.
Male.	38	Ague.	From 5 to 8 m	174 minims.	8 days.	Cured.	The average number of days under treatment by Carbolic acid was 7.75.
do.	25	do.	do. 5 to 12 "	414 do.	15 do.	do	
do.	21	do.	do. 5 to 8 "	150 do.	7 do.	do	
do.	23	do.	do. 5 to 10 "	222 do.	9 do.	do	
do.	24	do.	do. 5 to 8 "	174 do.	8 do.	do	
do.	42	do.	5 minims.	90 do.	6 do.	do	
do.	33	do.	20 do.	420 do.	7 do.	do	
do.	34	do.	20 do.	420 do.	7 do.	do	
do.	42	do.	20 do.	360 do.	6 do.	do	
do.	34	Febricula.	5 do.	75 do.	5 do.	do	
do.	25	do.	From 5 to 8 m.	198 do.	9 do.	do	
do.	34	do.	5 minims.	90 do.	6 do.	do	

CASE 1. Private, æt. 38.—September 20th, 1872.—This man was admitted into Hospital on the 18th September suffering from fever of an intermittent type. Paroxysm comes on daily and lasts seven hours. Bowels regular, tongue coated, complains of the usual symptoms of pain in back, head, and limbs, accompanied by a feeling of malaise. To be placed under the Carbolic acid treatment commencing with Carbolic acid $\mathfrak{m}$ v. and Inf. Gentian $\mathfrak{z}$ i.

ter in die sumend.

Fever has come on as usual, lasting for seven hours.

21st.—Rigors commenced at 12 A.M., when an ounce of the Carbolic acid mixture of the same strength was given, which cut short the paroxysm considerably. Fever of a much milder type continued for six hours; did not perspire.

22nd.—No fever. Increase acid from 5 to 8 minims.

23rd.—Patient looks better this morning. Tongue clean, bowels regular, pulse normal. Continue acid.

24th.—No fever, continue acid.

25th.—do. do.

26th.—do. do.

October 1st.—No return of fever. The acid was omitted on the 28th September.

Well.—Discharged to duty.

CASE 2. Private, æt. 21.—September 21st. Admitted suffering from fever of an intermittent type with distinct paroxysms. States that fever came on for three consecutive days prior to admission. Bowels constipated, tongue foul, urine scanty and high colored, sp. gr. 1010, acid reaction. To have a saline aperient followed by.

Carbolic acid $\mathfrak{m}$ v.

Inf. Gentian $\mathfrak{z}$ i.

ter in die sumend.

Paroxysm lasted for eight hours to day.

22nd.—No fever. Continue acid.

23rd.—No fever. Perspired freely. Continue acid.

24th.—Felt slight heat of the skin.

Increase acid to 8 minims.

28th.—No return of fever since the 24th.

October 1st. Well. Discharged to duty.

CASE 3. Private, æt. 32.—September 11th, 1872. Admitted suffering from fever of a continued type. There is a

marked remission, but no intermission; bowels constipated, tongue coated, pulse small, weak, and frequent, 120. To have saline aperient followed by

Quiniae Sulph. gr. v.

Acid. Sulph. dil. $\mathfrak{m}$ v.

Aquæ $\mathfrak{z}$ i.

ter in die sumend.

19th.—Fever has continued every day since admission, severe for 8 hours. Omit Quinine. To have Carbolic acid $\mathfrak{m}$ v. Inf. Gentian $\mathfrak{z}$ i. ter in die.

There is some enlargement of spleen; complains of a good deal of uneasiness over that region. To have hot fomentations followed by turpentine stupes.

20th.—Fever came on at 9 P. M. and lasted until 3 A. M. on the 21st. Continue acid. Apply blister to region of spleen.

21st.—Fever came on at 1 P. M. and lasted until 4 P. M. Continue acid, dress blister.

22nd.—No fever. Continue treatment.

23rd.—No fever. Continue treatment.

24th.—Had slight heat of skin for three hours.

Increase acid to 10 minims.

25th.—Had slight heat of skin for two hours. Continue acid.

26th.—No return of fever. Continue acid.

October 1st.—No return of fever, tongue clean, bowels regular, spleen reduced nearly to its normal size, looks better.

2nd.—Omit acid.

9th.—Well. Discharged to duty.

CASE 4. Private, æt. 34.—September 19th, 1872. Admitted suffering from fever of an intermittent type. Paroxysm comes on daily and lasts for eight hours, bowels regular, tongue coated, urine scanty, some vomiting present. To have Mustard emetic which brought up a quantity of undigested food.

20th.—Fever came on at 11 A. M. and lasted until 6 P. M.

Carbolic acid $\mathfrak{m}$ v.

Inf. Gentian $\mathfrak{z}$ i.

ter in die sumend.

21st.—Fever returned at the same time as yesterday and lasted only 4 hours. Continue acid.

22nd.—No fever. Increase acid to 8 minims.

23rd.—No fever. Continue acid.

28th.—No return of fever since the 22nd. Omit medicine.

October 2nd.—Had a slight return of fever on the 30th. Revert to acid minimis 8.

9th.—Better. No return of fever since the 1st. Omit medicine.

18th.—Has been kept in hospital for the last nine days in case a relapse might occur.

Well. Discharged to duty.

CASE 5. Private, æt. 42.—September 25th, 1872. This man came into hospital suffering from intermittent fever of a severe type, which he said commenced at 11 A. M. and lasted until 5 P. M. Bowels constipated, tongue coated, conjunctivæ yellow. To have saline aperient after which bowels acted freely. Fever came on at 12 P. M. and lasted three hours.

26th.—Fever came on to-day at 11 A. M., and lasted until 3 P. M.

Carbolic acid $\mathfrak{m}$ v.

Inf. Gentian $\mathfrak{z}$ i.

ter in die sumend.

27th.—No fever. Continue acid.

28th.—Slight heat of skin for one hour. Continue acid.

29th.—No fever. Continue acid.

October 2nd.—No return of fever since the 29th. Omit acid.

6th.—No return of fever, but still feels weak and prostrate, the result of severity of the attack.

15th.—Still weak. To have

Mist. Quinæ et Ferri et Strychniæ $\mathfrak{z}$ i.

ter in die sumend.

21st.—Improving. Continue medicine.

30th.—Well. Discharged to duty.

CASE 6.—Private, æt. 27. October 13th, 1872.—Has been under Quinine treatment since the 24th of September to which the symptoms yielded for a short time. It has again returned and assumed a more severe type.

To have an aperient.

14th.—Fever came on to-day and lasted for six hours.

Carbolic acid, $\mathfrak{m}$ 20.

Inf. Chiretæ $\mathfrak{z}$ i.

ter in die sumend.

15th.—Had slight heat of skin for six hours. Perspired freely. Temperature 98. Continue acid.

16th.—No return of fever. Continue acid.

17th.—No fever, tongue clean, bowels regular, looks bright and cheerful, appetite good. Continue acid.

20th.—No return of fever since the 16th. Omit acid.

31st.—No return of fever; kept in hospital up to the present date in case relapse should occur. Well. Discharged to-day.

CASE 7. Private, æt. 22. October 13th, 1872.—Admitted, suffering from fever of a mild type which during the last three days has put on a more severe form. Has been under Quinine treatment since admission on the 6th instant up to the present date. Temperature 103°, bowels costive, tongue coated, urine scanty and high colored, pulse small, weak and frequent, countenance anxious looking.

To have Pil. Hydrarg. grs. v. followed by

Haustus Sennæ Comp. $\mathfrak{z}$ iss.

which produced a free action of the bowels.

Carbolic acid $\mathfrak{m}$ xx.

Inf. Chiretæ $\mathfrak{z}$ i.

ter in die sumend.

14th.—Had only slight heat of skin from 10 A. M. to 3 P. M.; pulse 93. Continue acid.

15th.—No return of fever, not even heat of skin. Continue acid.

19th.—No return of fever. Omit acid.

20th.—Well. Discharged to duty.

CASE 8. Private, æt. 33, October 16th, 1872.—Admitted two days ago, suffering from fever of an intermittent type. Fever was almost continuous on the 14th, 15th, and 16th, bowels acted on by an aperient and the Quinine treatment which has been adopted from the onset without benefit was discontinued.

To have instead Carbolic acid $\mathfrak{m}$ xx.

Inf. Gentianæ $\mathfrak{z}$ i.

ter in die sumend.

Pulse 112. Temperature 105°.

17th.—Fever came on at 11 A. M., and lasted until 7 P. M. Pulse 105. Temperature 101°.

Continue acid.

18th.—No fever. Had slight heat of skin from 1 to 6 P. M. Temperature same as yesterday. Pulse 99.

Continue acid.

19th.—No fever. Continue acid.

23rd.—No return of fever since the 19th.
Omit medicine.

Patient looks, bright and cheerful.

29th.—Well. Discharged to duty.

CASE 9. Private, æt. 34.—October, 16th, 1872. Admitted, suffering from fever of an intermittent type. Paroxysm comes on daily, tongue coated, bowels constipated, complains of severe pain in back, head, limbs, &c, bowels acted on freely by an aperient. To have Carbolic acid $\mathfrak{m}$ xx.

Inf. Gentianæ $\mathfrak{z}$ i.
ter in die sumend.

To-day fever lasted for 4 hours.

17th.—Fever came on at 6 P. M., and lasted until 8 P. M., terminating in profuse diaphoresis, tongue coated.
Continue acid.

18th.—No fever. Continue acid.

22nd.—No fever since the 18th. Continue acid.

23rd.—No return of fever. Omit medicine.

29th.—Kept under observation up to date.

Well. Discharged to duty.

CASE 10. Private, æt. 42.—October 18th, 1872. Admitted suffering from severe fever of an intermittent type. Paroxysm came on at 12 P. M. yesterday and lasted until 8 P. M. to-day, bowels costive, complained of severe pain in back, head and limbs, accompanied by general feeling of malaise. Tongue coated. To have an aperient followed by Carbolic acid $\mathfrak{m}$ xx.

Inf. Gentianæ $\mathfrak{z}$ i.
ter in die sumend.

19th.—Fever came on at 10 A. M., and lasted until 1 P. M. (only 3 hours.)

Continue acid.

20th.—No fever. Continue acid.

23rd.—No return of fever since the 19th.

Continue acid.

24th.—Better, omit medicine.

27th.—Well. Discharged to duty.

CASE 11. Private, æt. 34.—September 20th, 1872. Admitted suffering from fever of an intermittent type, Paroxysm

lasted for 7 hours, bowels costive, tongue coated. To have an aperient followed by Carbolic acid $\mathfrak{m}$ v.

Inf. Gentianæ $\mathfrak{z}$ i.
ter in die sumend.

21st.—Fever returned to-day, but of a much milder type, lasting for 7 hours unattended by rigors, urine scanty and pale, sp. gr. 1010.

22nd.—Some slight irritability of stomach present last evening, vomiting ceased after two effervescing draughts each containing 3 minims of Hydrocyanic acid. No fever to-day. Continue acid.

23rd.—No fever. Continue acid.

24th.—No return of fever since the 21st.
Continue acid.

25th.—Continues improving. Omit acid.

October 1st.—Kept under observation up to date.
Well. Discharged to-day.

CASE 12. Private, æt. 25, Sept. 21st, 1872.—Admitted this morning suffering from fever of an intermittent type; paroxysm has come on daily for 5 days previous to his admission and lasted for 6 hours on each occasion, bowels costive, urine scanty and high colored, sp. gr. 1020, tongue foul, bowels acted on by an aperient.

Carbolic acid $\mathfrak{m}$ v.
Inf. Gentianæ $\mathfrak{z}$ i.
ter in die sumend.

To-day fever came on at 1 P. M., and lasted until 5 P. M., (4 hours.)

22nd.—Fever came on at 12 A. M., and lasted until 5 P. M.; did not perspire.

Continue acid.

23rd.—Fever came on at 12 A. M., and lasted until 5 P. M.
Increase acid to 8 minims.

24th.—No fever. Continue acid.

25th.—No fever. Continue acid.

26th.—Slight heat of skin for 3 hours. Perspired freely; Continue acid.

27th.—No fever. Continue acid.

30th.—No return of fever nor even heat of skin since the 26th. Omit acid.

October 1st.—Well. Discharged to duty.

Some remarks calling in question the efficacy of Carbolic

acid and casting doubts upon the safety of administering it or even applying it externally, appeared in the August Number of "The Indian Medical Gazette." To these I replied in the pages of the same Journal, but deem it necessary also here to add that I never observed the slightest ill effects to follow either its internal use, or its outward application.

I administered it in seventy-six cases of fever of different types, with most marked success, and in no single instance with bad results; but, owing to the great amount of work consequent upon the epidemic, it was impossible to enter every case that occurred fully in the Journal, although brief statements were made of each and the results corresponded with those now recorded. I gave it in doses ranging from five to twenty minims, and in those cases where I observed a tendency to relapse, I at once increased the dose. It was administered in bitter infusions of either Gentian, Calumba or Chiretta, three times a day.

The Carbolic acid I employed was Calvert's No. I for internal use.

Having now had ample opportunity of judging of the effects of this remedy and finding its success to have exceeded my expectations, I trust that the information I have given will be sufficient to induce others to adopt it in similar cases.

I have little doubt that the ease with which it can be procured, and the small amount of trouble entailed in its administration, added to its trifling cost, and the immense saving to Government that would ensue from its being largely substituted for Quinine, will recommend it as a valuable febrile remedy, and I do not think that a careful trial of it will fail to prove satisfactory.

GENERAL HOSPITAL REPORTS.

ART. IV.—*Case of Chronic Tuberculosis, complicated with Dengue.* By E. F. BROCKMAN, Resident Medical Officer, General Hospital.

A. G., an Overseer in the D. P. W., aged thirty years, was admitted, late in the evening of the 6th March 1871, into the General Hospital, with the following history. Ten years ago he was accidentally shot on the left side of the chest, while removing a loaded fowling-piece from a cart. The

weapon was loaded with No. 6 shot, and the larger portion of the charge penetrated the cavity of the chest, and injured the lung near the apex. Profuse suppuration followed, and the parts gradually healed. A large number of the shot, which can be felt subcutaneously, however, having been left. Since that time he has enjoyed fair health and has pursued his duties as a private engineer and as an overseer in the Department of Public Works, up to a month ago, when cough, preceded by hæmoptysis, followed upon a severe bronchial catarrh.

He was under treatment of a dresser in an up-country station, but, deriving little or no benefit from the means employed, he sought admission into the General Hospital.

The inspection of the chest on the left side reveals two blistered surfaces which are yet raw. The supra and infra-clavicular regions are much depressed, and along the course of the fifth rib is a series of small cicatrices indicative of the lodgment of the shot. The whole of the left chest is smaller and more sunken than the right side, which appears to be normal.

Percussion elicits a dull note on the left side especially at the part corresponding to the middle of the lung; on right side resonance normal.

Auscultation.—Puerile breathing in the upper lobes of right lung, tubular breathing at the inferior lobe, with propagation of the heart's sound through this portion. On the left side gurgling is heard, with amphoric breathing in different parts, but more distinctly heard about the middle of the lung, as if the lung was riddled with cavities. Heart's action weak and more rapid than normal. Expectoration viscid, consisting of opaque muco-pus, stringy and adhesive. The sputa have a tendency to assume a nummular form. The odour of the breath is very offensive. Respiration is hurried; pulse frequent and weak; tongue coated with a light fur, edges indented with impressions of the teeth. Complaints of pain in the left side of the chest, and of profuse sweating towards morning. He is ordered the following medicine and food:—

R. Liq. Potassæ Permang. 3 ss.
Aque ferventis O i.

To be used for inhalation thrice daily.

R. Potas. Chlor. gr. x.
 Acid. Hydroch. dil. ℥ x.
 Træ Ferri. Perchlor. ℥ x.
 Aquæ. 3 i.

To be taken thrice daily.

R. Ol. Morrhuæ 3 ii.
 Calcis Phosphatis 3 i.
 Mellis. 3 iv.
 Ft. electuarius.
 A teaspoonful twice daily.
 Milk diet. Portwine 3 vi.

March 8th.—Cough very troublesome; sleeps badly at night; cheeks flushed; is unable to lie down, but sits up and leans forward over a table at his bedside.

Continue medicine.
 Liq. Morph. Acet. ℥ v. (gr. 4).
 At bed time.

10th.—No improvement. Expectoration profuse, consisting of pus in nummular masses floating in a thin, dark, very offensive fluid. Hectic fever recurs at irregular periods.

Carbolic acid inhalation.
 Opiate epithem.
 Cont. Cod's liver oil electuary.
 R. Tinct. Camph. ̄. Opio. 3 i.
 Potas. Chloratis gr. v.
 Aquæ 3 i.

Every second hour.

12th.—All the unfavorable symptoms as above recorded continue. Both legs have become œdematous. Has taken an aversion to the Cod's liver oil.

Carbolic acid inhalation.
 Flannel bandages to legs.

Cont. mixt. add Sp. Æth. Nit. 3 i.
 Cod's liver oil to be used as an inunction.

16th.—Auscultation points to a cavity of some size in the left lung; pectoriloquy is well marked, with metallic tinkling at short intervals; the sputa are very offensive and indicative of gangrene of the lungs. To get nightly one-fourth grain of Morphia in addition to his other medicines.

21st.—A smart hæmorrhage of bright arterial blood from

the lung. The following mixture substituted for the medicine he has been hitherto taking.

Acid. Sulph. dil. ℥ xxv.
 Liq. Morph. Hydrochlor. ℥ xv.
 Træ. Digitalis ℥ v.
 Aquæ. 3 i.

Every third hour.

April 1st.—The hæmorrhage was controlled by the above mixture and pills containing the acetate of lead and extract of opium. The sputa are in color like prune juice and very offensive.* All hæmostatics to be omitted, and the previous remedies to be recommenced.

10th.—On this date the patient complained of pain in the left axilla over a spot of cicatrized tissue; on the following morning the fluid within the cavity of the chest found an exit through this spot, accompanied with feelings of considerable relief and comfort to the patient. The fluid evacuated is similar to that expectorated. This part was poulticed.

May 5th.—The patient since the last note has been gaining strength, although the same material, in considerable quantities, has been expectorated, and has drained away from the fistulous opening in the left axilla. Recurrences of a low fever come on daily, and intensely so on any attempt to close the opening.

28th.—The patient's strength has been much taxed since last date. A renewal of the hæmorrhage in small quantity was reported this morning. The discharge from the axilla continues. A few days afterwards a round swelling on the left side of the chest is found two inches below the left mamma. After a few days this disappeared.

June 26th.—Some dropsical symptoms are beginning to manifest themselves. The face, lower extremities and left side of the thorax are reported to have become œdematous. With this state an increasing amount of weakness is likewise recorded.

August 31st.—The condition of the patient, as above described continued until this date, when, after pain of greater or less intensity, a large amount of very offensive purulent expectoration was ejected from the thorax, giving an idea as if the cavity of an abscess was being emptied.

October 4th.—The patient is reported as "gaining flesh." The discharge from the axillary opening has much dimin-

ished together with a subsidence of the œdema of the side and lower (left) extremity.

12th.—On the preceding day the fistulous opening is reported to have become closed, and the cough and feelings of dyspnœa and pain in the chest to have greatly increased. Hæmorrhage from the lung is again recorded on this morning. The opening in the side is subsequently reported to have become patulous.

November 30th.—Since the last report was made, the patient has been gradually gaining flesh, and is recovering his lost power of walking. On the 24th, however, urgent symptoms pointing to the confinement of a purulent fluid in the left pleural cavity began to manifest themselves, and we find the patient once again retrogressing. The same treatment has been persevered in as last noted, and the sinus has been kept patulous by the insertion of a small piece of Gentian root.

January 2nd, 1872.—The month of December was passed by the patient in a moderately fair amount of comfort. The strength and vigour are returning. Yesterday he obtained leave to spend the New Year's day with his friends;—the first occasion of his leaving the hospital since his admission. On his return he suffered from some febrile action, with pain in the chest and a troublesome cough, and expectorated a large quantity of blood mixed with some offensive pus. Passed a bad night.

Hypodermic injection of Morphia.
Omit Cod's liver oil.

R. Liq. Ammon. Acet. ʒ iv.
Tinct. Camph. ʒ. Opio. ʒ ss.
Aque Camphoræ ʒ iss.
ter in die sumend.

31st.—Has been steadily losing ground since the last report. The expectoration continues to be profuse and offensive.

March 29th.—No new nor any urgent symptoms were noticeable during the past two months. The patient wears a small curved silver tube in the sinus, which has been dilated by the application of the sea-tangle tent at intervals of a few days.

June 18th.—During the past few days an œdematous condition of the lower extremities has been noticed. On

examination of the urine this morning albumen is found in large quantity.

Ferri. et. Quinæ. Cit. gr. v.
Aquæ. ʒ i.
ter in die.

July 10th.—Hæmoptysis came on this day. The discharge from the fistulous opening in the side is also mixed with blood. On the day following a very frequent action of the bowel set in. The alvine discharge contained clots of dark colored blood. This condition continued until the 21st instant, leaving the patient very weak. The treatment during this period consisted of Ipecacuanha with astringents.

August 15th.—The anæmic state of the patient is increasing, together with a larger deposit of albumen in the urine, although the patient describes himself as better and appears to be in a mere hopeful state about himself.

September 9th.—Up to this date matters were progressing, comparatively speaking, favorably with the patient, when fever, accompanied with severe articular pains, a suffused state of the conjunctiva, a tongue coated with a thick white fur, a rapid respiration and pulse, and an heightened temperature, set in. This was an attack of dengue from which a large number of the patients in the hospital were suffering. This additional disease proved too great a tax upon a constitution already broken by a prolonged illness, and after much suffering, the patient expired at 12 o'clock on the night of the 12th instant.

Section Cadaveris was performed ten hours after death. The body is in an emaciated state. In the axillary space of the left side is an opening through which a probe can be passed into the thoracic cavity. Rigor mortis present.

Pleura and Lungs.—The cavity of the pleura on the right side is partially closed by old adhesions at the base of the lung. The cavity of the left is entirely obliterated, the thoracic wall on this side is lined by a thin layer of lung tissue in a gangrenous state. The entire lung is absent, and in the cavity formed at the expense of the lung tissue is a large quantity of very foul dark fluid, which holds in suspension fragments of gangrenous lung tissue. The lung of the right side exhibits pneumonic consolidation of a chronic nature, imparting to the lung a firm consistence, and causing it to sink in water. The anterior margins and

upper lobe are free from this condition. Weight of right lung 2 lbs. 2 oz.

Heart.—The pericardial cavity holds about three ounces of serous fluid. The left ventricle is partially contracted, and the muscular structure is increased in thickness. Valves normal. Weight 10 oz.

Liver.—Fatty in structure, and larger than normal.

Kidneys.—Are typical specimens of the pale mottled enlarged kidneys. The capsule is readily removable. The application of Iodine tincture causes the Malpighian bodies to stand out as small dark brown spots, pointing to the albumenoid change in the minute capillaries. Weight.—Right, 7 oz. Left, 8 oz.

Remarks.—The above case is one which rarely occurs in the practice of the majority of medical men out in this country. The opportunities of observing, from the beginning to the ending, cases of such chronicity are for various reasons rarely enjoyed, and still less frequently are we able to trace and follow so markedly the sequence of pathological changes which the history before us presents.

We find the patient to have been a healthy young man occupied in a profession notorious for the well-being of those who practise it, until a penetrating shot wound of the chest on the 6th March 1871 leads to a destruction of the lung structure. All acute symptoms pass off, the patient once more reverts to his duties, in what he describes as "fair health" for some time afterwards. He then suffers from a bronchial catarrh, and the material doubtless of a lowly organized character, which had been thrown out in the structure of the organ takes on inflammatory action. A hæmorrhage from the lung occurs, and the symptoms of an acute pneumonic phthisis present themselves. Here we have a good illustration of the doctrines laid down by Niemeyer in his valuable monograph on Pulmonary Phthisis, published by the Sydenham Society. A considerable portion of the lung must have been destroyed under the inflammatory process, because we find that on admission the physical examination of the chest plainly indicated the presence of cavities in the lung. Pus of an offensive character also is said to have been expectorated, and there is the attendant hectic fever. The expectoration then becomes changed into a thin, dark, and very offensive fluid, holding in suspension

a large number of nummular masses. This points again to the gangrenous state of the tissue of the lung.

About a month after admission the fluid, which was evidently confined within a cavity in the lung, finds an exit through the parietes of the chest as high up as the axilla; in short, at the point marked by a cicatrix as the original seat of injury. From this opening a large quantity of matter, similar to that expectorated, was discharged daily, and with this a progressive and increasing anæmic state. The blood appears to have been considerably altered in its physical properties, as indicated by the manifestation of dropsical symptoms, puffiness of the face, œdema of the lower extremities, &c. This may be ascribed in part, to the long continued suppuration, to the presence in the body of tissues in a gangrenous state, and to the frequent recurrences of hæmorrhage from the chest. Eight months after admission some signs of improvement are recorded,—an improvement which only lasted for two months, for we find the patient again relapsing into his former state. The hæmorrhage was repeated, the expectoration and discharge from the side of the chest recurred, together with the presence of the watery parts of the blood in the subcutaneous cellular tissue. The examination of the urine now shows that the albuminous principles of the blood are passing out of the circulating current, and that a serious structural metamorphosis is taking place in the structure of the kidneys, and especially in the vascular portion of those organs. On the 15th June 1872, or about 15 months after admission into hospital, the examination of the urine is made, and we find it recorded that "albumen is found in large quantity." This state of kidney must have begun some months before without producing any symptoms indicative of so serious a change in structure; and this is but an additional proof to the caution, held out by writers on the subject, that the urine should be frequently and very carefully submitted to an examination in all cases of prolonged profuse suppuration. The infiltration of organs by that peculiar albuminous principle, which leads finally to their destruction, is one of the most insidious of pathological changes with which we are acquainted, and it is not until the degeneration has progressed to an extensive degree that strongly marked symptoms are exhibited.

The amount of albumen in the urine continues to increase,

although the symptoms pointing to chest mischief are said to be less urgent.

On the 9th of September of this year, dengue, which was very prevalent in Madras at this time, attacked the patient, who having passed through the febrile stage, succumbed to the effects left by this painful but in itself not dangerous disease. The amyloid disease of the kidney would most surely have proved fatal to the patient even had the suppuration from the chest ceased or had dengue not overtaxed his small remaining strength. The kidneys were found on examination to have been nearly double their normal weight, and to have been very extensively infiltrated with the albuminoid material. Had no intercurrent disease hastened the fatal end, in all probability death would have come about by interference with the function of the kidney, and retention of urea within the circulating current.

THE MEDICAL PROFESSION IN INDIA.

THE subject of the Medical education of the natives of India is one of such extreme importance that we need offer no apology for adverting to it on the present occasion, and it will be proper, in the first place, to glance at what has already been done, and then to suggest what remains to be accomplished.

In regard to the action of the State in the encouragement of general and special education, we must frankly admit that the claims of Medicine have not been altogether overlooked, but we cannot say that these claims have met with all the consideration that, in the special circumstances of the people, they seem to merit. The Indian Government has for many years past made provision for the medical training of men required for the subordinate duties in the general administration of the Military and Civil departments of the State, but it has not up to this time framed any comprehensive scheme for the education of the class of men, who are the ordinary physicians and surgeons of the people at large. However much the Indian public may desire to have medical practitioners who are fairly skilled in modern medicine and appliances, it is quite evident, that as regards the bulk of the people the services of such men are beyond their reach, for the simple reason, that the action of the Government in this matter has hitherto been confined to the provision of medical men for State services, and not for the public benefit.

The subject of extending the benefits of medical education to a wider circle has repeatedly been before the authorities. In our own Presidency Sir William Denison took it up, and Lord Napier was known to

be favorable to a scheme with this object in view. It is believed that His Lordship placed on record a minute embodying his views in regard to the establishment of provincial schools of medicine, but whether this be the fact or not, we wish to direct attention to the circumstance that after many years of cogitation, the practical measures for the extension of medical education seem to be as far off as ever. It is, we think, much to be regretted that the Imperial Government has not considered the subject worthy of legislation, for as the practical duty of providing funds for medical education now devolves on Provincial Governments, a great diversity of practice is sure to obtain, and difficulties are likely to arise, in dealing comprehensively with the several questions involved.

It is scarcely necessary for us to review the present position of medical education, in all the Indian Presidencies. It will be sufficient if we confine our observations to the work done, and left undone, in our own Presidency.

The Madras Medical College is so arranged that it is capable of affording a complete medical training to candidates for the public service, and to a few private students, but it must be sufficiently obvious that if the United Kingdom with its smaller population requires from thirty to forty separate medical schools for the training of the medical practitioners of the country, that a single school for the 40,000,000 of population of Southern India is quite inadequate to the occasion. The first requirement then would appear to be the establishment of provincial schools of medicine at certain well chosen central localities, in which the elements of a sound medical education might be given to all persons wishing to qualify for the profession of medicine, and while these district schools should be instituted, there should also be provi-

sion for extending the operations of the Presidency Medical College.

It is manifestly the duty of a Government to see that the means of special education are available for all those of its subjects who desire to pursue so eminently useful a calling as the profession of medicine, and until the educational part of the question has been provided for, it would be premature to enforce by legislative enactment, a standard of qualification for entrance to the profession. We would, therefore, press upon the Government, the need of action in giving to educated natives, what, in the course of a few years would practically be a new outlet for remunerative labour. All candidates should have provided for them the means of learning their profession, so that they might attain a certain defined standard of knowledge, without the possession of which, no man should be allowed to exercise a calling of so grave and responsible a nature.

It is quite obvious that the Government cannot undertake to provide every one of its subjects with skilled medical aid, any more than it can undertake to supply the population with curry and rice gratuitously. There are things which properly pertain to the functions of a Government, while there are others which concern only the governed.

It is the duty of a Government to take measures to ensure that persons professing to have a knowledge of medicine and surgery, should actually be in possession of the knowledge they profess. This is a recognized duty of the State in all civilized countries, and why the circumstances of India should require a different treatment we cannot say; but it is the fact, that the millions of the people upon whose labours the prosperity of the country depends, are, when prostrated by sickness, and their lives imperilled by neglect of sanitary laws, at the mercy of any pretenders to medical knowledge, who choose to

prey upon them, the laws of the country offering no obstacle to the perilous career of ignorant and unskilful practitioners. In regard to the sister profession of the law, the Government of India has already taken care that unqualified persons have no encouragement. All pleaders and vakeels, after a certain date, are required to show that they have some knowledge of law and procedure, and it is equally clear that the ignorant poor throughout the country require protection against the quack in physic, as against the pretender to legal knowledge. It is clearly the duty of the Government to enforce a study of medicine, on all who would seek to obtain a living by practising it. As regards the present race of *hakeems* nothing can be done; they must go on to the end of their career as they have begun. Every year of delay in fixing by legislative enactment a prospective date, subsequent to which no one should be permitted to engage in practice, without the possession of a certificate of qualification, only helps to increase the present difficulty, for year by year a new crop of ignorance and pretension is added to the growth of the past. It is for the Government to fix upon a date, subsequent to which all men entering upon the profession of medicine shall give evidence of some knowledge of the profession. The standard of knowledge must not be too low, nor too high, for the practical wants of the country must be considered in preference to mere theoretical views of what the knowledge of a medical man should be; but until such a standard has been decided upon, and the means of educating the candidates have been made available in the various provinces of India, it is hopeless to expect that the profession of medicine can ever take or hold its proper place in the estimation of the people. In asking that the Government of India will take measures to ensure that the medical profession shall be placed on no worse a

footing as regards the status of its members and their legal right and privileges, than the legal profession, we are asking for no more than is justly the due of the profession, and we are quite certain of this, that if entrance to the profession is duly guarded and protected by the State, the educated natives of the country will not be deterred, as they now are, from seeking admission into it.

Our demands then, we repeat, are briefly that the means of medical education should be more generally diffused throughout the country, and that the status of a qualified medical practitioner, his rights and privileges, should be defined by law, and that from a prospective date, all candidates for the profession should be subjected to the operation of the law. The change we advocate is a very important one, but until it is brought about it is difficult to see how a public health department in these Eastern possessions of the Crown, can be anything beyond an empty name.

HEALTH OF MEDICAL MEN.

The Journal des Connaissances des Médicales, of 3rd October last, contains several articles of some interest to Medical readers. The first is from the pen of Dr. Beaugrand, one of the joint editors of the Journal, on the health of medical men. The author refers to the enquiries of Cusack and Stokes of Dublin regarding the mortality of medical men in Ireland. Their enquiries extended from March 1843 to December 1847, a period of four years and nine months. It appears that, out of 2,700 medical men, 178 died in 1847, the year of the great epidemic of typhus,—about 1 in 15,—and that 114 succumbed to typhus fever. Excluding the exceptional year of 1847, we find that, in the four preceding

years, 76 medical men died of typhus out of a total of 252 deaths from various causes,—that is, at the rate of 1 in 3·3; while the mortality from typhus, compared with that from all other causes, in the general population, was 1 in 10·5, figures which clearly show the great risk to life, encountered by medical men, during their attendance on typhus patients.

Yellow fever appears to be a less transmissible disease than typhus; for, during the terrible epidemic of this disease at Lisbon in 1857, only two physicians and twelve surgeons fell victims to it.

In 1832, during an epidemic of cholera, out of 1,200 medical men then practising in Paris, 30 died, about 1 in 40 or 2·5 per cent., while the general mortality was 1 in 45 inhabitants or 2·2 per cent. If we keep to certain ages, the death-rate of medical men from cholera will appear greater. It was 2·7 between the ages of 30 and 60, and 6·37 above 60 years of age.

The mortality among French military surgeons, from all causes, is given as 2·6 per cent, while at corresponding periods of life in England, it is only 1·8.

M. Chenu has recorded that 82 military surgeons died during the Crimean war, out of a total of 450 or at the rate of 18·2 per cent; while the mortality was only 7·30 per cent among other staff officers. Naval medical officers also die, in greater numbers, compared with their combatant brethren.

Dr. Beaugrand gives us a morsel of comfort by saying that, notwithstanding the various anxieties which beset the career of medical men, mental alienation is rare among them; and he cites, in support of this statement, the following table from the work of Parchappe:—

Artists	-	-	-	9·60	per cent.
Lawyers	-	-	-	8·41	do.
Clergymen	-	-	-	4·15	do.
Medical men	-	-	-	3·85	do.

If this table be correct, there must be something in our professional training which hardens the mental and moral fibres of our organization and enables us to breast successfully, the various troubles that beset our path, in the battle of life.

The author sums up thus:—our lot is far from being a tissue of gold or silk. The physician is always at the disposal of the public; for him, there is no repose; he ought never to be fatigued. The hour of his repast is that which is chosen to send for him or to consult him. His zeal and love for his patients should be boundless and shown at all times, otherwise they say that he is not fit for a priesthood by virtue of which they impose on him the most painful duties without feeling gratitude, in return. May physicians be devoted, devoted even to the sacrifice of their lives, as is the case during epidemics and in the treatment of contagious diseases, when they verify the adage *aliis inserviando consumuntur, aliis medendo moriuntur*. What will be our recompense? The ingratitude and forgetfulness of our patient, the eternal pleasantries of romancers and ballad makers, the butt of the story teller, &c. It is the old story of “more kicks than ha’pence;”—but as this is the way of the world, our Gallic brother should bear up philosophically and not murmur.

Under the head of “Pathologie et Therapeutique,” we read that M. Tillaux, at the Hospital of St. Louis, has extracted several foreign bodies from the external meatus of the ear. He recommends that, in the first place, the presence of the foreign body be verified by using Toynbee’s Speculum and by the method of illumination recommended by Grættsch. He then uses injections with some force or he employs forceps. In the case of children whose steadiness cannot be depended on, he first induces anesthesia by means of Chloroform and prefers extraction by forceps, with

illumination, to the employment of injections. We do not think that these modes are superior to the introduction of a loop of wire beyond the foreign body and then making traction.

This number of this Journal also contains an interesting article on the treatment and symptoms of uræmic poisoning, by Dr. Potain. This physician believes that this complex state is due to the non-elimination of extractive matters from the blood, although the present state of science does not permit us to specify any one in particular. The symptoms supervene in the course of any disease which interrupts or diminishes the function of the kidneys, and especially in albuminuria. Nearly all of them refer to the nervous system, the most important being cephalalgia, then amblyopia, diplopia, and, in rare cases, dullness of hearing. Convulsions are sometimes tonic, but oftener, clonic. In other cases, there is coma more or less complete or delirium which is generally a "subdelirium tranquille." Respiration is often difficult. Vomiting and diarrhœa are present, the former from the very beginning. Epistaxis is also frequent. These symptoms present themselves, diversely, in groups. Sometimes we find convulsions and coma;—at other times, convulsions, at first, tonic, then clonic, followed afterwards by coma. In other cases, delirium succeeds convulsions, then there is dyspnœa, or one only of these symptoms may be present.

M. Potain relates the following case:—A patient suffered from amaurosis of recent date, accompanied by severe headache. A skilful oculist had stated that there was commencing atrophy of the retinal papillæ. M. Potain proved the existence of albuminuria and put him on a free milk diet. After some time, the sight returned and the headache disappeared. At the end of two months, the oculist reported that there was no trace of retinal alteration.

We can hope for such improvement in incipient cases only.

He then tells us that digestive troubles are often the precursors of uræmia and that, in acute cases, they are soon followed by coma. A man in London went to a druggist for a draught, on account of dyspepsia. He swallowed a draught of rhubarb with a few drops of laudanum. Soon after leaving the shop, he fell down in a fit of coma and died. Opium poisoning was suspected. On dissection, Bright's disease of the kidneys was proved to be the cause of death.

On the other hand, the symptoms of uræmia are very gradually developed, and the disease runs a slow course.

If uræmia result from a poisoning of the blood, the indications are 1st, to eliminate the poison.

2nd, to neutralise what cannot be eliminated.

3rd, to treat the symptoms.

M. Potain objects to diuretics, believing, that they irritate the already diseased kidneys. Violent diuretics are apt to produce convulsions. He recommends elimination by the bowels; but advises caution regarding the employment of purgatives in chronic cases, as ulceration of the intestines is often present.

In order to fulfil the second indication, he recommends benzoic and hydrochloric acids; but expresses himself very doubtfully regarding their efficacy.

To relieve urgent symptoms, as convulsions, he recommends hydrate of chloral and chloroform. To quiet the nervous system, in cases which are making very slow progress, he advises bromide of potassium from the use of which, he says, great benefit has been derived.

MEDICAL MISCELLANY.

Abortive Treatment of Boils and Whitlow.

DR. Simon de Forges (*Rev. de Therap.*) advises the topical use of camphorated spirits as an abortifacient in boils and whitlow. In the former case the boil is to be rubbed eight or ten times by the finger dipped in the alcohol. He asserts that it is rare that after this treatment a boil goes on further towards suppuration. In cases of whitlow he advises the patient to dip the finger for some ten minutes in camphorated spirits. This almost always gives great relief of the pain, and often cures the complaint.—*Medical Press and Circular.*

Eucalyptus Globulus in Intermittents.

THE results obtained during the summer have been collected and summarised by Dr. Joseph Keller, chief physician of the Austrian railway company. The number of patients treated with tincture of eucalyptus was 432. Of these, 310 (71·76 per cent.) were perfectly cured; and 122 (28·24) required to be afterwards treated with quinine. Of the 310 patients who were cured, no paroxysm occurred after the first dose in 202; in the remaining 108, there were one or more subsequent paroxysms, which, however, yielded to repeated doses of the medicine. Quinine had been given without result in 118 of the 432 cases; 293 of the patients had had ague in previous years, and 139 were attacked for the first time in 1871. Of the 122 cases in which eucalyptus failed, 58 recovered under the use of quinine, 38 were not cured, 10 were sent home, and 16 remained under treatment. Of the 118 cases in which quinine had been given unsuccessfully, 91 recovered under the use of eucalyptus, and in 27 no result followed.

The several types of intermittent fever were represented as follows:—quotidian, complicated, 117, simple 73=190; tertian, complicated, 126, simple 95=221; quartan, complicated, 16, simple 4=20; quintan, complicated, 1. The complications were, enlargement of the spleen or liver, anæmia or chronic gastric catarrh, paludal cachexia, &c. The remedy was successful in 161 of the 260 complicated cases, or 61·9 per cent.; and in 149 (or 86·6 per cent.) of the 172 simple cases. The percentage of

success in the several types were: in tertian, 75·57; in quartan 70; in quotidian, 67·89. Among the cases in which the first dose of eucalyptus arrested the disease, were 95 complicated and 107 simple; 28 of the former and 20 of the latter had previously been treated unsuccessfully with quinine. In the cases where the paroxysms recurred, there were 70 complicated and 38 simple; quinine had been given without success in 27 of the former and in 15 of the latter.

Of the 432 patients, 353 were men, 46 women, and 33 children. There were 155 patients who were immigrants into the localities; and in these the disease was more frequently attended with complications, and the treatment was less successful, than among the indigenous inhabitants.

The treatment was generally commenced on the fifth day after the first paroxysm of ague; its duration averaged $9\frac{1}{2}$ days, that with quinine in previous years having been $12\frac{1}{2}$ days.

The tincture was made by dividing into small pieces the leaves of eucalyptus obtained through France from the native country of the plant, and macerating in alcohol for three months. Ten pounds of leaves yielded twenty-five quartz of the tincture. The average dose was two drachms—and the average quantity used for each patient was 7 drachms; this, however, varied much according to the nature of the case and its complications.

Dr. Keller concludes that eucalyptus must be regarded as a very important remedy for ague; but that the plant as cultivated in Austria is less efficacious than that imported from its native soil; that the remedy is of service especially in obstinate cases of ague where quinine has been given unsuccessfully; and that the average duration of treatment by eucalyptus is shorter than that by quinine. He believes that the tincture is the most eligible preparation of the plant, as the essential oil is retained. The cost of a quart of the tincture he calculates to be less than two florins. It has a pleasant aromatic flavour. For women and children, some simple or orange syrup may be added. In the milder cases, two or three teaspoonfuls, taken before the expected paroxysm, are generally sufficient. Where cachexia is present, small doses should be taken night and morning for some time.—*Medical Press and Circular.*

*The Origin and Signification of the Symptoms of Brain Disease.**

THE lecturer stated that he found the task a difficult one to condense all he wished to say into the time allowed for one lecture; he would therefore occupy the present lecture chiefly in refuting

* "The Origin and Signification of the Symptoms of Brain Disease." BY C. E. Brown-Séquard, M. D. A Lecture delivered in Boston, Oct. 5th, 1872. Reported for the *Boston Med. and Surg. Journ.* by S. G. Webber, M.D.

certain views which are an obstruction to progress, reserving for another time the process of rebuilding new views.

According to the view for a long time held by medical men, the brain is an organ which serves to induce action in other parts of the body, and which in turn receives the impressions made upon various portions of the body; it is, in fact, the centre for various functions. A great modification must be made in this view; we must now recognise more centres for volition and more for perception than have been hitherto admitted.

It is generally considered that the hemispheres of the brain act each on the opposite side of the body. Dr. Brown-Séquard thinks he can establish the fact that one hemisphere is sufficient to act on both sides of the body, can cause motion in both sides and can perceive sensations coming from both sides. It is at first difficult to admit this view, for so many facts apparently show that injury in one hemisphere destroys motion and sensation on the other side of the body.

The time would not suffice to go fully into the views of Carpenter and Broadbent. The latter has shown that in cases of cerebral disease, the knees, the tongue, the face, and a few of the muscles connecting the limbs to the trunk are the ones paralysed. He considers that the medulla may give rise to an influence which will cause both eyes to act; so if the left side of the brain is diseased, the affection of the muscles of the trunk is not confined to one side, for the medulla acts on both sides. This view Dr. Brown-Séquard thinks cannot be correct, for cases of disease of the medulla disprove it.

It is the common view that paralysis is due to destruction of brain tissue, and that excess of action is caused by irritation of a diseased part; but we know that a limb may be both paralysed and convulsed at the same time, which are directly opposite conditions, according to this view.

Cases occur of diseases of the brain on both sides without any symptoms, even extensive disease, which must have existed many months before death; there are also cases of symptoms of brain disease without signs of actual disease of that organ, even after careful microscopic examination, symptoms such as paralysis, coma, convulsions, and others without disease, with no toxæmia or alteration of the blood to produce them.

Again, there is no relation between the intensity of symptoms and the extent of the disease. The same disease may be found in different people with different symptoms, and the same symptoms may accompany different diseases. Disease of any of the viscera, as the liver or kidneys, may produce symptoms of brain disease by alteration of the blood, producing a poison; this poison must be the same in each case of kidney disease, but the symptoms are not the same. It must be that there is another cause in action at the same time with the toxæmia. This is the irritation

of the nerves of the viscera, and it is to the variation in this irritation of the nerves that varying symptoms are due.

A prick of a lung may give rise to partial closure of the eye and constriction of the pupil on the same side. If a simple prick will produce such phenomena, then inflammation of a large mass of the viscus may produce greater disturbance—as, for instance, pneumonia, which may give rise to paralysis, continuing even after the pneumonia has passed away. Many facts show that loss of power is not due to lesion of the brain alone. Reference was made to cerebral tumour with symptoms of varying intensity, at times resulting in almost complete recovery. Symptoms also may disappear just before death, as in cases of insanity, and yet the autopsy shew great disease of long standing.

Disease of the membranes may be compared with that of the brain; the former may cause all the symptoms of the latter, and some, as convulsions, may occur even more frequently from meningeal than cerebral trouble. As the pia mater lies next the brain, it might be supposed that disease of it would cause more cerebral symptoms than disease of the dura mater. Affections of the latter, however, are more similar to disease of the brain than those of the pia mater. This may show that disease of the brain itself may cause symptoms by irritation acting on other parts of the brain.

Disease of the mucous membrane and of the skin may cause symptoms of brain disease. A young gentleman had all the symptoms of softening of the brain and general paralysis. On examination, it was noted that he carried his hand frequently to his penis. An inflammation was found at that point, which, by proper treatment, was cured, and in a week the cerebral symptoms had disappeared.

If the difference in action in the two sides of the brain be studied, it will also be perceived that symptoms do not arise from direct destruction of function. In regard to aphasia, some symptoms appear when the right side is diseased; it is generally, however, found in disease of the left side. The loss of intelligence is most marked in disease of the left side, and the mechanical part of speech is more altered.

When the right side of the brain is affected, lesions indicating alteration of nutrition are more frequently found. In animals hæmorrhage in the lung and œdema of the lung are found in lesions of the right side, especially at the base; or there may be congestion in one part and œdema in another. In this œdema it was found that there are no red corpuscles in the vessels; some serum is found around them, but they are filled with white corpuscles. So in man, hæmorrhage and inflammation in the lung are more frequent when the disease is on the right side. Optic neuritis in one or both eyes is more frequently seen in disease in the right of the brain. The tumour of the lobe of the ear (hæma-

toma auris), so often seen in insane asylums, and attributed often to mechanical injuries, is due to nervous influence; it may be produced at once by injury to the base of the brain. It may be caused in animals within a few hours, and may be followed even by gangrene. The left ear is the one generally affected, opposite the seat of disease in the brain.

Two other alterations of nutrition are more frequently seen in disease of the right side of the brain than the left—œdema of paralysed parts and bed-sores. The latter lesions, as may be observed, are on parts opposite the seat of lesion in the brain, and are not the result of pressure.

In most cases of epilepsy, cerebral lesion is confined to the right side. The deviation of both eyes is met with more frequently when the lesion is on the right. So, too, the paralysis of limbs is more considerable and more lasting. Phenomena of hysteria are more frequently located on the left side. In nine cases where the convolutions were affected with the paralysis on the same side, it was twice on the left, seven times on the right. With other parts affected, fifty times the lesion was on the right, with the paralysis on the right. Hæmorrhage on the right side destroys the patient quicker than when it is on the left. Among animals, of 28 injured on the left side, 16 survived; of 47 injured on the right only 11 survived. If lesion of the right side causes changes in nutrition, as already mentioned, it is natural that more deaths should occur than when the left side is injured.

One side of the brain is sufficient for the functional integrity of both sides of the body. If the outer half of the right eye and inner half of the left eye receive fibres from the right side of the brain, as has been described, then injury of the right optic tract should cause hemiopia. This has been found to be the case. But disease in the optic tract may also cause hemiopia in one eye, or may cause amaurosis in both sides of the opposite eye, or of both sides of the corresponding eye. These views are contrary to those generally entertained. It may also cause amaurosis on opposite sides of each eye. Destruction of the tubercular quadrigemina on one side and of the neighbouring optic tract has been known to cause no amaurosis. It must then be admitted that one optic tract is sufficient to transmit visual impressions to the brain, and half of the brain may serve for vision in both eyes. In animals it is found that irritation at a distance from the eye may produce amaurosis. Injury to the medulla oblongata will cause amaurosis on the same side, and injury in front of the medulla oblongata amaurosis on the opposite side. Amaurosis may be caused by irritation of other parts, as of the facial nerve, or by disturbance of the intestines, as by the presence of worms. In these cases, it is the nutrition of the retina and of the brain which is affected.

As disease of the right side may produce aphasia in right-

handed persons, so it may arise from other causes than loss of function of the third left frontal convolution. Without any organic lesion in any part, aphasia may be present. It may come and go with peripheral irritation. It may be found in connection with lesion of other parts of the left hemisphere than the third frontal convolution. Aphasia is rare in children, and there may be atrophy of the left side of the brain without aphasia.

Again, disease of the third left frontal convolution may exist without aphasia, as in the case reported by Drs. Bigelow and Harlow where the crowbar passed through a man's head; in another case, a ball destroyed that convolution without causing aphasia, and the man was not left-handed. Aphasics with disease of the third convolution have been known to talk when insane. There are, also, cases of sudden recovery from aphasia. General paralytics often speak badly, and their third frontal convolution is diseased like the rest of the brain.

Hemiplegia, as a symptom of brain disease, varies greatly; it may not exist with great disease, or it may be present when there is slight disease. In complete hemiplegia, there is always some paralysis of the opposite side, with disease of only one side of the brain. Irritation, then, may affect the nutrition of the opposite side, and so cause paralysis.

The anterior pyramids decussate. A disease of the crus cerebelli, or the restiform body or the part of the pons near the root of the fifth nerve on which the crus cerebelli is implanted, a tumour, for instance, pressing on those parts, causes paralysis on the same side. If, instead of pressure, there is destruction of the part, there ought to be paralysis on both sides, if, in the former case, the paralysis on the same side was due to destruction of superficial fibres, for both the deep and superficial fibres are, in this case, implicated. Only one case is known, where both sides were paralysed. In other cases, there has been considerable disease without paralysis. So when the disease is the cause of paralysis in the same side it is by the action of irritation in other parts. The symptoms are not caused by loss of function or by irritation at the part affected.

Can we form a diagnosis? Yes. Disease of the base in affections of the brain causes symptoms differing according to the nerves implicated. Aphasia may occur, generally, with one lesion, and a diagnosis be made as if the old view of brain disease were correct; and so of other symptoms.

By what mechanism are the symptoms caused? There are two classes, those of irritation and those of cessation of activity. Reference was made by the lecturer to the inhibitory phenomena in connection with the heart and respiration. As certain irritations cause the cessation of the heart's action and of respiration, by influencing nerve cells, so the will can act to check or stop the action of the respiratory centres, or of the

centres for action of the sphincter muscles; so, also, it may stop spasms, as coughing or sneezing. Some symptoms of disease may be prevented by inhibitory action.

A case of the latter was shown by a negro and his master. The latter had disease of the spinal cord, one symptom being general rigidity, with convulsions on being touched. The negro stopped these by drawing on the big toe of his master, and so, during the interval of quiet, was enabled to dress him. In Guinea pigs in which epilepsy has been produced artificially, the spasms may be stopped by the action of carbonic acid gas on the larynx, for which purpose the tube conveying the gas must be passed well into the mouth near to the larynx. Cauterisation of the larynx in epilepsy has been proposed, and performed a few times with success, especially when the muscles of the larynx seemed implicated in the fit.

A prick of the posterior columns may produce paralysis at once, and so of other parts at a distance from the brain.—*The Medical Press and Circular*.

Prediction of Sex in Utero.

T. J. Hutton, M.D., Resident Physician to Long Island College Hospital (*New York Medical Journal*, July 1872), in substantiating the assertion advanced by Tyler Smith and others, that not only can pregnancy, in its advanced stages, be determined by auscultation, but also the presentation, position, and sex of the fetus *in utero*.—submits the following essential points from the clinical records of seven cases as a proof of the practicability and reliability of this rule: Fœtal pulsations, heard below a horizontal line, dividing the uterus into two equal parts, denote vertex presentation; above it, breech presentation; below it, and to the right, second position. When the fœtal pulsations number 144 per minute, it is a female; 124 per minute, male. As deviations from this rule, or average, will doubtless be encountered, he ventures to add that a variation of six beats per minute, from 124 upward or from 144 downward, will not endanger a diagnosis, provided auscultation be practised in the ninth month of pregnancy. In his cases this rule was the sole guide, and without a single failure.—*The Medical Record*.

A New Rule for the Dose.

THE table of Gaubius is known to all, and that of Dr. Young is nearly as frequently acted upon. Neither are quite satisfactory. It is well known that in experiments on animals the dose should vary with the weight of the animal, and Dr. E. H. Clarke, in the

Boston Med. and Surg. Journal, proposes that in practice we should regulate the doses of our remedies by the weight of our patients, in the following manner:—

"Assuming the average weight of an adult to be 150 pounds, for whom an appropriate dose is about one drachm, the dose of most medicines must be increased or diminished in the proportion of the weight of the patient to that number of pounds. This proportion is represented by a fraction, whose numerator is the patient's weight and whose denominator is 150. If a child at birth weighs six pounds, the appropriate dose for it would be 6-150th or 1-15th; if it weighs ten pounds, 10-150th or 1-15th. A child two years old, weighing twenty pounds would require 20-150th or about 1-7th of an adult dose; or, more precisely, 1-7½, which is exactly half way between the quantity indicated by the table of Gaubius for a child two years old and that indicated by Dr. Young's scheme for the same age. A person whose weight is 200 pounds should have 200-150th or 1⅓ of an average adult dose. A child twelve years old, weighing seventy-five pounds, would require 75-150th or half of an average dose.

"The modifications of the average dose, demanded by a patient's idiosyncrasy disease and other conditions than age or weight, are not, of course, met by the above rule."—*The Doctor*.

Cysts in the Liver in Childhood.

BOUCHUT (*Gaz. des Hop.* 8, 1872) made an observation on a girl of eleven, who was brought into Hôpital des Enfants Malades with a severe pain in the right hypochondrium and a swelling in the same locality. The tumour had grown gradually in six months, so that a notable raising up of the ribs was perceived in the region of the liver. The increase in size of the liver was in the right lobe, in which an elastic fluctuating tumour was perceptible to touch. The child was thin. Dieulafoy's aspirator drew off 85 grammes of saltish serosity. A few days after pleurisy ensued, but the child recovered.—*The Doctor*.

Calcareous Infiltration of the Heart.

THE *Glasgow Medical Journal* of August contains the report of two cases of this nature. In the first, the lime salts were deposited in the muscular fibres in the form of minute round granules, the appearance produced considerably resembling, both to the naked eye and microscopically, that of fatty degeneration. The salt deposited in this case was not the carbonate, but probably, entirely, the phosphate of lime. This occurred in a case of chronic bronchitis and emphysema, with a possible syphilitic taint.

In the second case the lime salt, which consisted in great part of the carbonate (effervescing with an acid), was deposited more homogeneously, converting the fibres into rigid cylinders, having a considerably crystalline texture. This occurred in a patient who died of pyæmia.—*The Medical Record*.

Physiological Action of Alcohol.

W. E. BESSEY, M. D. (*Canada Med. Record*, Sept., 1872), in an important paper on "Therapeutic Value of Alcohol," speaks thus of its physiological action: "Its effects are to irritate and inflame the stomach, to vitiate the secretions of the alimentary canal, and thereby produce dyspepsia, diarrhœa, and dysentery. Its action on the blood is to impoverish that fluid and to cause a retention of fatty matters therein; upon the brain, congestion at first of its meningeal coverings. Congestion of the brain substance follows, producing disordered action and finally inducing abnormal changes of structure; impairing, weakening, or destroying the harmony of the intellectual operations. It induces a semi-apoplectic condition of the lungs when taken in large quantities, and always favors a determination of blood to this organ, which eventually produces diseased structure. It congests the liver (especially when taken in the form of brandy or spirituous liquors), and by its oft-repeated action on that organ weakens its structure, impairs its function, and eventually produces a diseased condition of the organ. Upon the kidneys its action is no less detrimental; by its repeated congestions favoring granular degeneration, or Bright's disease; and greatly aggravating diabetes, if not directly causing it, by its property of exalting the function of the liver to produce sugar, and by exaggerating the glycogenesis of health, causing an excessive excretion (of sugar) by the kidneys. It may also aggravate diabetes by its action upon the nervous system, producing that altered condition which is favorable to the collection and discharge of sugar from the body.

"It being well known that injury to the sympathetic nerve rapidly induces a strongly diabetic state, as also does the inhalation of anæsthetics as chloroform and ether, so that alcohol, being an anæsthetic to the nervous system, may act in that way to aggravate diabetic symptoms."—*The Medical Record*.

Chloral Hydrate in Puerperal Convulsions.

EDWARD MONTGOMERY, M. D., of St. Louis, Mo. (*St. Louis Medical and Surgical Journal*, Sept. 1872), after employing venesection, and administering brisk purgatives, in cases of epileptiform or apoplectic puerperal convulsions, then greatly prefers

the chloral hydrate to the chloroform, or the ether and chloroform treatment. He thinks the chloral is much safer, administered in 15 or 20 grain doses, and it can be given safely and efficiently by any sensible and experienced nurse. In administering this remedy he gives it in a dilute solution, and never repeats the doses at too short intervals. He generally orders, every two or three hours, two drachms in four ounces of spearmint or cinnamon water; a tablespoonful of this solution in a tablespoonful of syrup for a dose.—*The Medical Record*.

On Sphygmography. By A. H. GARROD, B.A., St John's College, Cambridge.

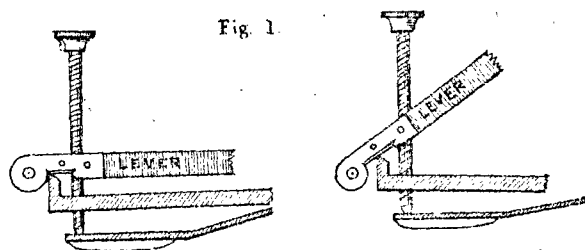
It is to the happy conception of Marey's, in which he obtained correct amplification of sudden small movements by employing the elastic force of a spring rather than the statical pressure of weights, that we owe the form of Sphygmography, now well known to most students of physiology; and the introduction of this fresh method of research has given a stimulus to the progress of precise thought respecting the circulation of the blood and the action of the heart, which must necessarily prove of extreme value in the investigation of pathological conditions now quite beyond our grasp.

Marey's original instrument, as constructed by Breguet is so well known, and so many excellent descriptions are accessible*, that it is not necessary to go into detail regarding it. In most respects it is the best form that has been introduced, and much credit is due to M. Breguet for the excellence of the mechanical construction. This maker has lately introduced a second instrument which has the advantage of removing the chief defects of the original one, and of introducing very little intrinsic error.

The chief objection to the old, or knife-edge construction, as it may be called from the fact that the recording lever is connected with the pulse pad by means of a sharp steel edge, depends on the necessary sliding of that knife-edge on the steel surface below the recording lever, by which means the distance between the axis of rotation of the lever and the point of contact of the knife-edge must vary with every movement of the former; the accompanying diagram shews how this is the case for two different heights of the lever.

* Marey, *Physiologie médicale de la circulation du sang*, Paris, 1863; B. F. Foster, M. D., *On the use of the Sphygmograph in the investigation of disease*, 1866; J. Bardon Sanderson, M. D., F.R.S., *Handbook of the Sphygmograph*, 1867; and others.

In consequence of this imperfection, two traces taken one near the top, and the other lower down on the recording paper present



characteristics which are in many respects different, and whose differences arise solely from the sliding above mentioned. The lever in the upper trace falls less rapidly than in the lower, as the knife-edge has to slide over a much larger surface in the former, than in the latter where it scarcely moves at all. As a result of this, the length of the first part of the higher trace is apparently greater than it ought to be.

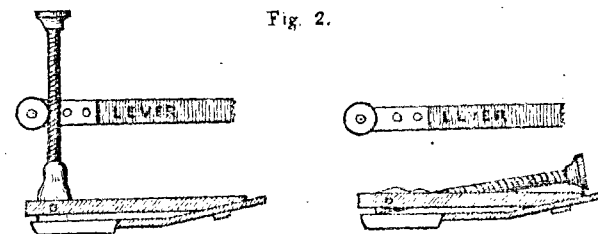
Another objection is, that there is no firm connection between the pulse-spring and the recording lever, so that when the latter is suddenly raised, as by the systolic impulse, the contacts of the lever, intermediate brasswork and pulse-spring, are not maintained, and a "percussion-rise" is seen in the trace. This error is partly obviated by a small spring which presses on the recording lever and tends to keep it in contact with the other moving parts, though this is omitted by some, much to the detriment of the instrument.

Though in the taking of the trace itself, this absence of connection between the lever and pulse-spring is disadvantageous, yet in the applying and removing of the instrument it is of extreme value, for it allows of any amount of pressure being put on the latter, without producing any strain or injurious effect on the former. In practice this quality is invaluable, and it is almost impossible to obtain it in any construction, other than the one under consideration.

Breguet's new sphygmograph is very simple and ingenious in principle, and in practice works admirably. As in the older instrument, the recording lever is fixed to the body of the apparatus by an axis or arbor, but the novelty consists in the manner in which this is brought into connection with the pulse-spring.

The lever is of the third kind, as in the other instrument, but

it has no steel surface below it for a knife-edge to play on, and it is, when not in use, entirely disconnected from the pulse-spring.



Near the middle of the arbor there is a small circular ring of brass, surrounding it, which has a diameter of about one-sixth of an inch. On its outer surface this ring is grooved and an endless screw is cut in this groove.

There is no brasswork attached to the pulse-spring corresponding to that in the older instrument. In its stead a long flat slip of brass, fixed about two-thirds the length of that spring from its attached end, extends onwards over the ivory pad. Just above this pad a steel screw about an inch long, with a milled-head at one end, is fixed at the other to the unattached extremity of the piece of brass just mentioned, by a hinge, and is so arranged that by means of the pulse-spring it is retained either at right angles to it, or lying along it, on the same principle that an ordinary knife-blade can be fixed half open or closed.

This long screw, when at right angles or nearly so, to the spring, comes in contact with the endless screw cut in the brass ring surrounding the arbor, and as they are of corresponding size, they bite and are retained in contact by the pulse-spring pressing on the fixed end of the screw, which is squared off in such a manner that it shall continue to press slightly backwards when in contact with the ring. It is evident from this construction that any up or down movement communicated to the pulse-pad, produces a corresponding rise or fall in the recording lever. When not in action the long screw can be thrown out of gear, down on the spring as seen in Fig. 2, and it has also a movement which allows of its being turned round, which can be employed as a fine adjustment in regulating the height of the lever point.

In this instrument the distance between the axis of rotation of the arbor and the part of the long screw which is in contact with the ring surrounding it, cannot vary, whatever the distance of the pulse-pad, and therefore no error is introduced in that direction. Also the difficulty in disconnecting the spring from

the axis, after the trace has been taken, is very slight; though it requires some little practice to do this, before removing the instrument from the wrist, as it always should be.

This, the rackwork sphygmograph, will probably supersede the knife-edge one by degrees, for the tracings are more uniform and in other respects quite as good as those obtained by the earlier instrument. For cardiograms it is not so advantageous.

With regard to the best means of binding the sphygmograph on the arm, the original method adopted by Marey of lacing it with a silk ribbon to the side-lappets is as efficient as any. The wrist should be always bent a little backwards, and care should be taken that the pad presses on the lower end of the radial artery, not on the superficialis volæ, as is apt to occur if it is fixed too far forwards. The pad introduced by Mr. Berkeley Hill enables the correct position of the hand to be maintained with facility, but it is scarcely necessary as a little practice removes all difficulty. It is worthy of notice that better traces can be obtained after the instrument has been applied a few minutes than immediately; for the pad, by its pressure on the skin, drives blood from the small vessels covering the artery and so lessens the distance between it and the pulse-spring.

To record the movements of the lever, it is best to employ highly glazed paper which has been smoked thinly by the flame of a composite candle; and to effect this properly, the paper must be folded on the metal plate which is connected with the running gear of the sphygmograph, and moved quickly up and down in the flame. By this means its edges are not charred and a more uniform film is produced. The pen must have a fine sharp point. A spirit varnish, such as is used for photographic plates, fixes the tracings, if a little is poured over them gently, and the paper is subsequently warmed.

An entirely novel form of sphygmograph has been constructed, by M. Longuet*, which, from a figure in Dr. Loraine's work appears to possess all the requirements of an accurate instrument, except in the recording portion, where the pen instead of writing laterally, as it might easily be made to do, rests on the paper horizontally and has to change its relation to the body of the instrument whenever the pulse-pad moves in the least. In principle its construction is in a great measure similar to that of the cardiograph in my combined cardiosphygmograph, which was described in this Journal in May 1871. It has a dynamometer attached which measures the pressure and its changes throughout the beat.

One of the points in which Marey improved upon Vierordt's original sphygmograph was, that he made his lever write laterally instead of at its tip, by which means he obviated all difficul-

* Bulletin de l'Acad. de Medecine, 1868, xxiii., 962.

ties connected with an exact up and down movement of the recording pen. But this gives rise to another slight error, which can and must be corrected in comparing the lengths of the elements of the pulse-beat. The lever, when the clockwork is stationary, traces a curved line and not a straight one, the curve being part of a circle, of which the lever is the radius and its arbor the centre. Therefore, when the watchwork is in action, the horizontal relation of points at different heights on the recording paper is not truly represented by straight lines drawn perpendicular to the length of the paper, but by lines projected from these points in curves parallel to that produced by the lever on the paper when it is stationary. These lines can be easily formed after the tracing has been removed from the apparatus, by scratching on it with a needle that is tied to a nail, or a piece of board with two pieces of cotton of the length of the recording lever, one to its eye, and the other near its point, if the tracing be fixed with its lower edge in the same straight line as the nail; for then the paper and nail bear the same relation to one another that the former did to the arbor of the lever when it was being recorded.

Dr. Sanderson,* Mr. Mahomed,† and others have introduced different ingenious methods for regulating and measuring the pressure applied on the artery, which they have described in full in their books and papers on the subject; but the desired results can be only approximate, as from variations in the elasticity of the skin in different individuals, and in the same individual under different atmospheric conditions, complications are introduced which cannot be eliminated.

The sphygmograph is a bad hæmadynamometer at its best, and as such its employment will probably diminish. A glance at the work of Dr. Loraine‡ will show that numberless variations in the character of a tracing can be introduced by very small changes in the position, &c., of the subject experimented on. But there is one part of the trace which is not affected in any way by these complications, and that is the relation borne by the length of the different portions of each beat to one another. Whether the arm is raised or lowered, whether the pressure is great or small, the interval between the systolic rise and the commencement of the diastolic rise does not vary in the least. These intervals cannot be correctly estimated except by the aid of the sphygmograph; and as the value of any method of investigation is greatest in that direction in which it is least influenced by surrounding circumstances, it is, as it will be my endeavour to prove when considering the tracings themselves, for the measurement of these intervals that we must look for the

* Loc. cit.

† Med Times and Gazette, 1872.

‡ Etudes de Médecine Clinique. Le Poulx. Paris, 1870.

future value of the sphygmograph.—*The Journal of Anatomy and Physiology.*

The Influence of Inheritance upon the Curability of Nervous Diseases. BY DR. ANSTIE.

A QUESTION of great moment is incidentally raised by certain portions of the medical evidence lately given before Mr. Dalrymple's Committee of the House of Commons on habitual drunkards. One of the most important questions which were made the subject of inquiry was the extent to which the habit of intemperance was the result of a faulty nervous organization inherited from intemperate ancestors. Upon this point there was a large preponderance of opinions affirming that inheritance is not only a frequent but a very powerful factor in the development of drunken habits. As might partly be expected with a subject which the profession at large has treated with extraordinary neglect, the opinions of the experts have been much misunderstood. An editorial paragraph for example, in a contemporary medical journal (published at the time that the Committee was sitting), represented Dr. Skae as giving his opinion that the paroxysmal form of drinking, which is inherited, is more likely to be amenable to prolonged forced abstinence than is the form of drunkenness which is the mere result of sottish habits gradually adopted under ordinary external temptation. Now that the evidence is published,* it is plain that Dr. Skae said nothing of the kind: the tendency of his testimony (though more hopeful as to the cure of paroxysmal drinking than I should have expected) was to assert that the fact of an inherited disposition made the cases more difficult, and more absolutely requiring a long period of detention and enforced abstinence, than those of ordinary tipping. I myself felt obliged to tell the Committee that I thought paroxysmal drinking was practically incurable, by incarceration or by anything else; that the sufferers from it were almost always members of families which were strongly tainted with insanity; and that the only paroxysmal drinker whom (in a considerable experience) I ever knew cured was a man in whose family the insane taint was very slight, if not absent.

The mistake, however, which the eager paragraphist of the journal referred to made as to Dr. Skae's meaning, might easily have been no mistake at all, for it represents a belief that is exceedingly prevalent, even among medical men who should know better, respecting the character of inherited tendencies, not only

* See the blue-book. "Report, Habitual Drunkards." Hansards. Price 2s. 6d.

to drink, but to nervous diseases generally. It came out with startling force in an observation let drop by Sir W. Gull at a meeting of the Clinical Society last year. In criticising the history of a supposed cure of a neuralgia affection, Sir William suggested that the case was perhaps one of those slighter varieties of the disease, which are the result of neurotic inheritance, and that it might therefore have spontaneously ceased, instead of being cured by the remedies employed. Now in one shape or another I am continually encountering the same idea among medical men, viz., that the nervous diseases of persons who belong to neurotic families are slighter, and more spontaneously curable, than those which arise entirely from external circumstances in persons whose ancestors have been free from nervous diseases. How such an opinion first arose, there is some difficulty in understanding; and as I believe it to be directly contradicted by the results of careful observation, it may be worth while to investigate the matter a little further.

It may be suspected that the example from which this notion of the mildness of inherited nervous diseases has been half unconsciously inferred by analogy, is that of inherited syphilis: yet even here it is plain that only a superficial view of the phenomena can have been taken. Granting the analogy between constitutional syphilis and the neurotic diseases, for the sake of argument, to be a fair one, then the whole of the phenomena of inherited syphilis should be looked at. Now it is true that, within limits, the tendency of inherited syphilis is to wear itself out, or at least to pass from the incurable into the curable stage. I suppose that there are not many English medical men who have had an extensive experience of constitutional syphilis, who would admit that we possess any means of treatment capable of really eradicating the disease from the system of the original recipient. Personally, I can say that nearly fifteen years' experience of dispensary and hospital out-patient practice has rendered any such belief impossible to me; so constantly have I found that the most completely treated, and apparently most perfectly cured subjects of constitutional syphilis, were liable to relapses if once their health became depressed below a certain point. On the other hand, the children of such persons, if they inherit syphilis at all, most commonly exhibit it in the form which occurs within a few weeks after birth; and that form is nearly always susceptible of permanent cure if it be promptly treated with appropriate remedies. But it must not be forgotten that in a considerable number of instances a more formidable variety of inherited syphilis makes its appearance at the time of the second dentition, and proves far more unmanageable than the kind which appears at an earlier period. Inherited syphilis of the period of second dentition is not frequently fatal; but it is singularly intractable to remedies, and the lesions which it causes are commonly permanent.

But in fact I need hardly say that the analogy between syphilis and nervous diseases is very imperfect. One would no more expect that the contraction of syphilis by a single individual would suffice to propagate syphilis in a permanent form to the race, than one would expect a single crossing of breed among dogs or horses to transmit the *all* characteristics of the mixture of race to the progeny of the half-bred offspring by an animal purely of one or the other breed. And, though we are at present without any reliable evidence that the offspring of a person who inherited syphilis can transmit it (without a new infection) to the third generation, yet it may be that, in an increasingly modified form, at present unrecognizable by us, this does take place. If now we turn to the circumstances of neurotic inheritance, we find a far different set of conditions. The contagion of neurosis is exceedingly apt to renew itself by breeding in and in; and in fact this is constantly happening, by a kind of natural selection; for the members of families which are pervaded by nervous disease often possess quick wit and lively social manners, which cause them to be sought in marriage by their similars. Again, it is a peculiarity of the neurotic inheritance that it renders the offspring more liable to succumb to the influence of those very external causes which are most likely to confirm the nervous character of the constitution. Morbid intensity of application to some one branch of intellectual study; morbid impulse to emotional religious dissipation; or morbid shrinking from all grief and trouble, leading to excesses in drink, or opium, or sexuality: some one or more of these will probably tell with disastrous force upon a certain number of the members of any family in which already the nervous disposition has become distinctly manifest.

By these recruitments there is at last brought about that kind of constitution, in a family which I have ventured elsewhere to call the Active Hereditary Neurosis, to distinguish it from the much slighter taint of nervous disease (called by me Dormant Hereditary Neurosis), in which we only trace the neurotic descent by isolated phenomena that are comparable to the sudden cropping up in a child of some peculiar cast of features which had not been seen in the family for several generations.* In the active hereditary neurosis, nervous disease of one kind or another is frequently appearing in a family, and those members who escape

* It might be supposed difficult or impossible to prove that there really was any inheritance at all in such cases of disease. Experience, however, would soon convince the objector that it was real. The startling way in which a child will sometimes present the very image of a great grandfather who was utterly unlike the usual family type, is not more impressive than the manner in which epilepsy, or insanity, or facial spasm, &c., will break out in an individual in precisely the same circumstances and fashion as it assailed the grandfather or great grandfather.

any definite disease are nevertheless marked by great mobility of the nervous system.

Let us now compare an individual of such a family, attacked with (let us say) neuralgia, with one in whom that disease has been set up in an accidental manner by external influences. [As I have elsewhere explained (*Journ. Mental Science*, January 1872), I doubt if there be ever a complete absence of hereditary influence in the production of neuralgia; but it may be of the dormant kind, and the principal factors in the genesis of the disease may be some unusually severe and continuous external impression.] The former person, we will suppose, is a woman attacked with the pain, without obvious cause, about the age of puberty, or else at the menopause. The other shall be a woman in whom the affection has been produced by the continuous and simultaneous action of starvation and intense over-strain of function—*e. g.*, ciliary neuralgia in a half-starved, hypermetropic needlewoman. Which of these two is most curable by direct interference? Why, the advantage is enormously on the side of the patient whose neuralgia has been artificially provoked: we can make her change her pernicious occupation, and we can order her iron and cod-liver oil, and (with the help of charity) some improvement of her food; and we expect to cure her entirely. But as to curing the spontaneous neuralgia, that is another affair. Where the hereditary evil influence is but slight, the neuralgia may wear itself out spontaneously; and in instances where the pain is even very severe, we may, by medicines and regimen, break the evil habit of pain. But not merely does the fact of inherited neurotic tendencies much increase the difficulty of conquering individual attacks, but the danger is great that such patients will be liable, all their lives, on the occurrence either of any of the natural physiological crises, or of unusual strains of fatigue of body or mind, to a recurrence of the complaint, as likely as not in increasingly severe forms. Above all, it is too probable that when the period for arterial degeneration sets in, the pain may recur with the persistency and intractability of the special neuralgias of old age, which appears to depend on permanent and incurable impairment of the nutrition of the nerve-root.

Of course I do not mean to say that there are *no* forms of neuralgia from external causes which equal or exceed in incurability the worst forms of the inherited disorder. But they are altogether exceptional. We may call the pressure on nerves from a cancerous tumour (which is necessarily continuous and incurable) an external cause of neuralgia. And among the various forms of nerve lesion from violence, there is one (which is altogether exceptional) that does not unfrequently set up a neuralgia at once of the severest and the most hopeless kind. The injury inflicted upon nerves by gun-shot wounds in modern

warfare is something quite peculiar; and the account which Michell Moorhouse and Keen gave of the neuralgias resulting from such injuries received by soldiers in the American civil war, introduced us to a kind of disease obviously different from anything which is met with in civil life. In short, we may say this—that in order for any peripherally acting cause unaided to set up a neuralgia equally intractable with those in which the chief factor is a strong inherited neurosis, such peripheral cause must act with extraordinary violence, and establish an unusually permanent lesion of nerve-trunks. In all probability, the result of such severe injuries to nerves is serious degenerative mischief in the spinal centres, judging by the symptoms which the American authors describe.

Nor is the case different, if we look at other neuroses. Epilepsy, for example, when the outcome of an inherited neurotic disposition, is as nearly as possible incurable, although we have doubtless the power, in many cases, to mitigate its symptoms, and to render the patient's life comparatively tolerable, and even sometimes very useful. But not even the bromide of potassium, combined with all those dietetic and other regulations which are known to be of great subsidiary advantage, can be said ever to cure a well-established case of inherited epilepsy so that we could confidently pronounce that it would not relapse. On the other hand, there are a number of varieties of convulsions outwardly indistinguishable from true epilepsy, but wholly due to extrinsic sources of irritation; and in these, for the most part, early and suitable treatment is able really to control and put an end to the disease. For instance, if epileptic attacks be due to irritation of the brain from a roughened inner surface of the calvarium, if it be possible to trephine and remove the offending substance, we expect to see the convulsive disorder altogether vanish with the immediate source of irritation. So, again, the practical physician thinks comparatively little of a *syphilitic* epilepsy, if the patient has a good, non-nervous, family history. He knows that he can perfectly control it by the use of iodide of potassium, or mercury, if he be summoned in good time; and although there is the possibility of relapse, that possibility is due to the tendency of syphilis to revive, not to any tendency in the nervous centres themselves. Even more striking, perhaps, is the difference between insanity that is inherited, and insanity that is created by external circumstances, as to curability. Every alienist knows this, and almost every ordinary practitioner of some standing must have met with one or more instances in which insanity produced by mere emotional shock in an otherwise healthy person, has been perfectly recovered from, and the patient has thenceforth remained free from any trace of mental alienation; whereas insanity occurring in persons who belong to decidedly neurotic families, seems to take a hold on the constitu-

tion which it never fairly relaxes. It is true that such a patient often recovers at the time, and some such persons continue to their lives' end without again being mad in a way that required actual confinement in an asylum: but in far the largest number even of such cases there is a stamp of eccentricity permanently imprinted upon the mind, and, one may even say, on the body too.

Undoubtedly, however, there are, in the case of insanity more especially, but also in that of other nervous diseases, certain concurrent causes which, where they exist, tend indefinitely to heighten the evil effect of the mere descent from neurotic ancestors, and which deserve to be specially singled out for remark, viz., (a) the inheritance of phthisis; (b) habits of self-abuse; (c) habits of alcoholic excess. As regards the first, there are many recorded facts, and many which I have personally witnessed, that show how disastrous it is for an already neurotic family to unite in marriage with a phthisical family; the offspring *may* be phthisical, but it is, at any rate, immensely probable that some of them will exhibit the neurotic tendencies of the stock with fresh and severe aggravation. Similarly, if an individual descended from a neurotic, but otherwise healthy, stock, has the misfortune to contract phthisis in an *accidental* manner—e. g., as the result of a neglected catarrhal pneumonia—the new morbid element in his condition may indefinitely aggravate the already existing nervous tendencies. Such an event is sometimes the precipitating cause of an outbreak of furious and rapidly fatal delirious mania.

The influence of *self-abuse* comes in as a factor often of great, but on the whole of uncertain and varying, power, in aggravating the tendencies to nervous disease. Probably it is never the sole cause—as so many seem to think it—of the neuroses (especially epilepsy) with which it is often connected in the experience of those who see much of nervous diseases. Rather it seems likely that excessive masturbation, such as visibly and powerfully aggravates the tendency to atactic conditions of sensation and motion, is itself nearly always an expression of profound deterioration in the hereditary conformation of the nervous system. No one who has seen much of practice among children can have failed to meet with one or more of those frightful cases in which a child, well brought up and cared for, has exhibited the extreme type of *mauvais sujet* from a very early age; and it not very infrequently happens that the bent of such childish preternatural wickedness is in the direction of sexual matters. In many cases one cannot suppose such a phenomenon to be much, if it be at all, the result of any direct influence of companions. On the other hand, there is no doubt that even where there seemed no special proclivity to youthful vice of this sort, vicious habits have been often *taught*; and in any case the exhausting effect of premature

sexuality upon the nervous system powerfully conduces to the aggravation of any existing neurotic tendencies.

The influence of *alcoholic excess* in heightening existing tendencies to nervous disease, and even creating them *de novo*, can be easily understood. There can be no doubt that this kind of excess most directly and actively interferes with the nutrition of the nervous centres, tending in fact towards the atrophy of the proper elements of nervous tissue, and the exaggeration of the mere connective-tissue elements of the nervous centres. But, moreover, the nervous centres of many drinkers are hereditarily unstable, hereditarily predisposed to break down in one way or another. Hence the maximum of mischief is produced when such a subject takes to alcoholic excesses.

It seems, then, that the whole evidence afforded by the history of the neuroses points to the conclusion that of all the factors of these diseases which strongly tend to make them obstinate and intractable in type, there is none which is to be compared, on the whole, for efficacy, with the single fact of descent from a strongly neurotic family stock: and that of the subsidiary factors the most important are three (phthisis, self-abuse, alcoholic excess), which are eminently exhausting and depressing to the individual, and eminently calculated to transmit an enfeebled and badly self-nourishing organism to the offspring.

It must be confessed that, at first sight, the outlook suggested by these considerations seems gloomy enough. What business, it might be asked, has a journal of therapeutics, which should deal with practical matters only, to waste its space and the attention of its readers upon such an unprofitable theme? I think it is possible to answer such queries to the satisfaction of every thinking medical man. Reflect, once more, upon the problem presented to us. It is this: that we are called upon to seek for some means of breaking through an influence—that of heredity—which has shown itself to be one of the most powerful and inevitable of all the influences which assist in the production of serious and incurable nervous disease. We have found that the secondary factors which especially tend to develop to the utmost the pernicious power of the hereditary influence are such as do not come into operation (in regard to neuroses) to any great extent, *before the age of puberty*. Phthisis, masturbation, drink,—and I might have added false *educational* stimulation of the emotional part of the mind,—these are the last straws, either of which will break the camel's back; either of which, that is to say, is sufficient to develop the full pernicious influence of the inherited neurotic tendency. The fully developed mischief at any rate, rarely breaks out before this period of life. Surely, then, the practical lesson is one of prophylaxis. We turn to "education," in the fullest sense of the word, as the best prospect of mitigating those nervous diseases of which the

hereditary character otherwise makes it so probable that they will be severe and intractable. We have the whole pre-sexual period of life to work upon: a period during which it is possible to exclude the disturbing elements which most seriously complicate the problem of nervous disease. I shall not here repeat what I have said at some length in another place* as to the details of the plan by which it might be attempted, with good hope, to effect this prophylaxis: it will be enough here to point out the main directions in which it must be carried out.

1. The supply of a nutrition for young children practically unlimited except by the powers of digestion and assimilation: and the adoption of every plan (and especially graduated, but not excessively fatiguing gymnastics) which may tend to increase both appetite and digestion.

2. The careful avoidance of all kinds of mental and spiritual training which would tend to generate self-consciousness, and the habit of unreal emotion.

3. The strict insistence upon a large allowance of sleep for children who are approaching the epoch of puberty.

4. Watchfulness, of the most unremitting kind, against the possible formation of bad habits, in conversation or act, with regard to sexual matters.

Strong as is the evil chain by which the burden of nervous weakness is laid upon the backs of the large and unhappy class who represent accumulated family tendencies to neurotic disease, we may fairly believe that in many cases it may be broken. For my own part, I am amazed to think how little the educational question has been yet studied in the sense of scientific prophylaxis against the nervous evils towards which individual children might be known to be specially prone. That this will be one of the great works of education in a not very distant future, I should be sorry indeed to doubt; the present paper is one of many efforts which I would gladly make towards accelerating so desirable a reform.—*The Practitioner*.

Remarkable Suicide by Rifle Shot.

A YOUNG soldier belonging to one of the regiments in the Northern Division of England absented himself on the night of the 2nd of November from off Guard, carrying with him, unobserved, his rifle and ten rounds of ammunition. Search was made for him but without success, and it was accordingly supposed that he had deserted. On the following morning, when the men

* "Neuralgia and Diseases that resemble it." Cap. V. Macmillan, 1871.

responsible for the cleanliness of the barracks came to a detached latrine that was used only in connection with the schoolrooms, they found him sitting dead in the corner of the place. He sat in a perfectly life-like attitude upon the ground, his back resting in the angle of the wall, his left leg extended, the right upon its outer side, half flexed, across it was the rifle, the muzzle pointing towards his body, a belt and piece of string passed from the trigger round the butt, upwards to his right hand; with this he fired the shot, while the left directed the rifle barrel to the chest.

When stiffened by *rigor mortis* his hands remained in the same position in which they had been when the last movement was performed. His elbows touched his sides, but the hands were raised unsupported towards each other, fixed in the half closed grasp, from which the rifle and the trigger string had been withdrawn by the recoil on firing. The face was calm and peaceful, its colour scarcely changed. The head had not dropped forwards, but rested naturally against the right-hand wall.

Although the body was not discovered for seven hours after death, and was then cold and rigid, there is every probability, from the position of the hands, that there must have been a "perpetuation of attitude and facial expression" without any intermission from life to death, as has been described by Inspector-General Longmore, C. B., in the last Army Medical Report. The *post-mortem* proved the suddenness of death to have been complete. The bullet entered, making a small aperture, immediately behind the ensiform cartilage, but with it rushed in also the unexpended force of the explosion, bursting the diaphragm from its attachment here, and literally blowing away the heart from its connection with the arteries. The anterior cardiac wall appeared untouched, but on raising that the ventricles and auricles were seen to be not only rent asunder from behind, but torn from all union with their vessels except where the right ventricle joined the wall of the pulmonary artery in front. The root of the left lung was but a shred, and a tear continued back-wards till it had almost divided the upper lobe from the lower lobe. The ball had struck the left side of the spine, broken the transverse processes of three vertebra, pulverised the articulating portions of the fourth, fifth, and sixth ribs, and finally lodged itself in shapeless splinters among the muscles of the back.—*The Medical Press and Circular.*

MEDICAL INTELLIGENCE.

(General Orders by the Governor in Council.)

Accommodation.—Govt. Servants.—Railways.

17th December 1872.

No. 1229 of 1872.—The following Notification, issued by the Financial Department, is published for general information:—

LEAVE AND ALLOWANCES.

No. 4108.—In supersession of the Notification of this Department, No. 3507, dated the 17th May, and No. 1063, dated the 12th July 1872, the Hon'ble the President in Council is pleased to rule that accommodation on the following scale shall be provided for Government servants travelling on duty on a railway, with passes granted to them by the Railway Company, in accordance with the terms of its contract with the Government:—

Servants whose monthly salaries are—

Not less than Rupees 350, first-class accommodation.

Less than Rupees 350, but

Not less than Rupees 25, second-class accommodation.

Less than Rupees 25, but

Not less than Rupees 15, intermediate-class accommodation if available, otherwise third-class accommodation.

Less than Rupees 15, third-class accommodation.

2. This Notification does not apply to Military officers or soldiers travelling on Military duty.

The provisions of the above Notification apply to Uncovenanted employes, not being soldiers, in the several Departments of Military Administration in the three Presidencies, as well as to those who may be serving under the orders of His Excellency the Commander-in-Chief in India, and their Excellencies the Commanders-in-Chief of the Armies of Madras and Bombay.

(General Orders by the Commander-in-Chief.)

Leave—Officers—Passages.

No. 227.

12th December 1872.

With a view to prevent misapprehension, the Commander-in-Chief is pleased to notify that the provisions of *G. O. 57 of 1872, directing officers entitled to free passages, who obtain leave from and after the 1st September, to await the first troop-ship of the season, do not apply to the extreme cases provided for in G. O. 321 of 1869.

Railways—Passage.

No. 236.

The following to be entered as para. 160-A, Transport Regulations, Part II:—

160-A. "Where under existing rules, an officer travelling on duty by rail is entitled to a free passage for his wife and family when accompanying him, but is compelled on account of sickness or other sufficient cause to leave them behind, the free passage by rail may be granted to them at such subsequent date as they may be able to join him. The passage will be given on the application of the officer concerned, who must state that his family was living with him at the time he himself left; and state also why they were unable to accompany him."

Convalescent Depots—Invaliding.

No. 253.

Recent observation, and the testimony borne by several highly competent and experienced medical officers to the restorative powers of the winter climate of the Himalayas, have rendered it necessary to modify the orders now in force prohibitory of the detention of convalescents for more than one season at Hill Sanitaria, and point to the expediency of the retention of a limited number of selected cases at these depôts throughout the winter, and, if requisite, for a second hot season, as a tentative and experimental measure, in view

* Madras G. O. C. C., 2nd July 1872.

† Madras G. O. C. C., 21st March 1872, p. 89.

to its adoption hereafter upon a more extensive scale should the experiment prove successful.

2. As in order to give the proposed experiment a fair trial, the men so detained must be carefully chosen, the selection of the cases will be entrusted to the Annual Invaliding Committee, presided over by the administrative medical officer, British Forces, of the circle in which the Sanitarium is situated.

3. These Committees will assemble at Sanitaria not later than November under divisional arrangements, and a second Committee similarly constituted will be convened at each Convalescent Depôt in the end of January or early in February at latest, so that such men as have not improved by that time, and of whose improvement no reasonable prospect offers, may be eliminated and despatched to England as invalids by one of the later troop-ships.

4. Officers commanding divisions and districts will see these orders carried into effect during the approaching relief season, in supersession of the orders now in force, viz., Adjutant-General's Confidential Circular, dated 10th September 1869, and G. O. 42*, dated 15th March 1871, para. 117, Clause 15.

Transport—Railways—Passage—Travelling Expenses.

No. 263.

Clause VIII. of para. 135, Transport Regulations, Part II, to be cancelled and the following substituted:—

Military Department, No. 369, dated 15th July 1872, and No. 501, dated 17th August 1872, to the Quartermaster General.

"VIII. Officers on leave at a station who may be detained there on duty beyond the expiration of their leave, are not entitled to free passages back to their regiments or stations.

"If, however, officers on leave at any station are directed to proceed on duty to another station, they are entitled to travel there and back at the public expense; should the officer, at the close of the duty on which he was deputed, prefer to proceed direct to his regiment or station, he is equally entitled to a free passage, provided that the expense shall not exceed that of his journey back to the station whence he proceeded on the duty. In the latter case an

* Madras G. O. C. C., 26th June 1871, p. 185.

officer would only be allowed the actual cost of the journey back to the place *from where ordered*, and would have to pay the difference himself."

Transport—Railway—Baggage.

No. 270.

Clause III. para. 98, Transport Regulations, Part II., to be altered as follows:—

"III. Subaltern officers arriving in India for the first time are entitled to have their heavy baggage, to the extent of five maunds or 400 lbs. conveyed at the public expense, in addition to the baggage allowed to passengers by the conveyance in which they proceed. When travelling therefore by rail, such officers will be allowed five instead of four maunds of baggage."

Military Department,
No. 910, dated 23rd December 1870, to Quartermaster-General.

Transport—Railways—Horses.

No. 274.

Para 132, Transport Regulations, Part II., to be cancelled and the following substituted:—

132.—"An officer on arriving in the country and proceeding to join his regiment or appointment where his duties require him to be mounted, may, if he provide himself with chargers on the spot, be allowed a pass for them by rail under the condition laid down in G. O. No. 98, dated 11th May 1867, Appendix No. I.) Free conveyance by rail is, however, only to be granted for the number of chargers an officer is entitled by his rank to keep and provided they are *bona fide*, his own property."

Military Department,
No. 1003, dated 30th August 1872, to the Quartermaster-General.

Dress.

No. 295.

Horse Guard's General Order 71 of 1872 (*Officer's Dress*) is re-published for the information of officers commanding British Infantry regiments.

The serge frock, as at present worn under the authority of the Horse Guards' Regulations of 1864, p. 86, will be

gradually replaced, as worn out, by the patrol jacket now sanctioned.

Horse Guards' G. O. 71 (Officer's Dress) specially issued
21st August 1872.

I. Her Majesty has been pleased to approve of a scarlet patrol jacket for officers of infantry.

II. The jacket is to be of scarlet cloth or serge, according to the climate, of the same shape and size as the blue patrol jacket, with collar of the regimental facings. The sleeve braided as the shell jacket, according to rank. Scarlet shoulder strap, with a small button and the number of the regiment in gold embroidered figures three quarters of an inch high and half an inch from the lower end of the strap. White cloth edging all round, except the collar, and round the shoulder strap. Scarlet lining. Field officers wear gold embroidered collar badges.

III. The scarlet patrol jacket is to be worn without the sash at drill, and on parade when the men are dressed in frocks.

IV. The blue patrol jacket may be worn on regimental boards and on fatigue, stable or orderly duties, but not on parade. Officers of line regiments are not obliged to provide themselves with blue patrol jackets, but may wear the scarlet jacket on occasions when the blue patrol jacket is authorized to be worn.

V. A pattern of the scarlet patrol jacket is deposited in the officers' pattern room, Horse Guards War Office, Pall Mall.

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c., from 1st November up to this date for securing the following rates of pension.

Names of Subscribers.	Children's dates of birth.	Sex.	Rates of Pension secured.	To what period.	Payments how made.
J. Wilson, M.D....	21st Sept. 1872...	Female...	Half ..	To 21 years	By Donation and Subscription.
M. F. Anderson ...	28th August 1872.	Male ...	Full ...	do. do.	By Donation.
J. Henderson, M.D.	10th Sept. 1868...	do. ...	do. ...	* From 18 to 21 years.	
D.C. McAllum, M.D.	8th Sept. 1872 ...	do. ...	Half ...	To 18 years	

N. B.—The rate of Pension marked thus * is additional to that previously secured.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
28th December 1872.

CORRESPONDENCE.

To the Editor of the Madras Medical Journal.

SIR,—It is only at Dr. Macnamara's desire that I again address you on the present subject, as I was otherwise willing that he should have the last word. I persist in my assertion that I have in no way misrepresented him.

Whilst I have pen in hand I may add a few lines to say that the cases he brings forward in his last letter are of the same kind as those I have already answered. For instance, in the case of the Seetapore waters, for the acquittal of which he takes credit, reference to the analyses explains the reason of the acquittal. Though nitric acid is said by the analyst to be 'present' yet its presence in any quantity above mere traces is most doubtful, at least if we are to believe the rest of the analytical evidence. Whatever I may have said of Dr. Macnamara's chemistry, I have never hinted that he was devoid of common sense—as he would be had he condemned the following water because of the large quantity of nitrates said to be present.

Seetapore E. I. well No. 19.

Total mineral solids	18.3	grs. per gallon.
Insoluble salts	14.0	" "
Soluble salts	4.3	" "

Nitric acid Largely present.

We however find that the total of the three 'soluble salts other than nitrates is 4.8 grs. per gallon; so that the amount of nitric acid "largely present" may be numerically expressed as *minus* .5 grains.

But, as at Nowgong, a scape goat was required, and, accordingly, one of the waters which, along with the same dubious amount of nitrates also contained a relatively large amount of chlorine, was sacrificed to save the rest; the victim was No. 2 in the R. A. lines.

I am, &c.

EDWARD NICHOLSON.

BANGALORE,
27th December 1872. }

TO CORRESPONDENTS.

The Inspector-General, I. M. D.—Surgeon JOHN SHORTT,
M. D.—Assistant Surgeon L. C. NANNEY.—*Received with thanks.*

BOOKS, &c., RECEIVED.

Medical Press and Circular, *October 30th, November 6th, 13th, 20th, 27th.*

The Doctor, *November 1st.*

Journal des Connaissances Médicales, *October 30th, November 15th, 30th.*

The Medical Record, *October 15th, November 1st.*

Report on the progress of education in the N. W. Provinces for 1871-72.

Consumption and the air rebreathed by Dr. McCromac.
Bangalore Spectator.

THE MADRAS MONTHLY JOURNAL

OF

MEDICAL SCIENCE.

No. XXXVIII.—FEBRUARY, 1873.

ORIGINAL ESSAYS.

ART. V.—*Notes, theoretical and practical, on Niemeyer's Pamphlet entitled 'On the symptomatic treatment of Cholera.'* By GEORGE SMITH, M. D., Physician to the General Hospital, &c.

(Continued from page 13.)

WHY cholera expresses itself in the intestinal canal we cannot tell; nor do we know the determining cause of one of its most prominent symptoms, namely, transudation.* That transudation is largely due to the wide-spread catarrhal congestion of the mucous membrane is acknowledged, but this does not explain the transudation from the cutaneous surface, nor does it explain the peculiar selection, if the expression may be used, of the saline, watery, and bioplastic constituents of the blood. The nerve centres are probably implicated in this process of transudation. In the acute endemic cachectic dropsy called Beriberi we have an example of a disease characterised like Cholera by transudation, in which the implication of the nerve centres is strongly pronounced, and the fact that Cholera and Beriberi, both fevers,

* Drs. Lewis and Cunningham state that the bioplastic bodies, which resemble pyoid or exudation cells, have a tendency to separate from the red blood corpuscles in cholera.

have contiguous endemic areas in India adds additional interest to the comparative study of both diseases. Malcolmson in his essay on Beriberi gives it as his view "that the spinal cord is primarily disordered, and that through actions induced by the affections of the nerves the other organs suffer secondarily." It is clear, however, on analyzing cases of the disease, that considerable deterioration changes must have taken place in the blood, changes affecting its nutrition and composition, before the manifestation of the nervous symptoms characteristic of the disease. In most cases Beriberi advances insidiously, the concluding scene being frequently short and violent;—numbness, paralysis and oedema of the legs; fever, nausea, scanty urine, increasing anasarca, urgent dyspnœa, oppressed precordia, failure of the heart's action, effusions of serum into the cavities, pericardium, brain and into the soft tissues of the body: finally sudden death from syncope. The post-mortem examination of a case of acute Beriberi reveals transudations into the cavities and into the connective tissues of such organs as the brain, spinal cord and lungs. The dropsy thus more or less rapidly developed leaves the blood in the dark ropy condition seen in cholera. In cholera the transudation is pre-eminently muco-cutaneous, in Beriberi it takes place from the general capillary system, that of the muco-cutaneous surfaces being excepted. Acute Beriberi is an inverted Cholera so to speak. The general symptoms of both diseases are dependent upon more or less paresis of the nerve centres. In saying this, I do not mean to advance the view that the two diseases are in any sense of the term identical; there are essential points of difference between the one a communicable, and the other a noncommunicable disease, but both have features in common which serve to illustrate the dependence of transudation upon changes in the *vis nervosa* of the nerve centres.

Cholera varies so much in its types and phenomena that we hardly ever see two epidemics or even two cases of the disease exactly alike. As regards the treatment, therefore, "*the entity is the patient.*" From the apparently simple case of choleraic diarrhœa to the complex and rapidly fatal example of asphyctic cholera we have to do with a disease whose identity is indubitable. This may seem to be a truism but is there not a reason for its re-statement? Does it not happen that whilst medical writers readily admit that *variola sine variolis* is small-pox, that *morbilli sine catarrho*

are measles, they somehow or other shrink from calling choleraic diarrhœa, cholera. Now this is not merely a matter of nosology, a fine drawn distinction for the sake of a name, it is above all a question of fact, a question affecting pathology, therapeutics and statistics. I firmly believe that the average mortality of 50 per cent assigned to cholera, represents not the mortality of the disease in its totality but the mortality only of its more pronounced varieties. The term choleraic diarrhœa, I maintain, should be excluded from our nomenclature, the affection being, in fact, not a simple diarrhœa but a true cholera.

"Although I do not deny," says Niemeyer, "that there probably exists a specific against cholera, such as quinine against ague, I still hold that such a specific has yet to be discovered." Cholera has certain links which seem to connect it with malarial diseases, at least so say Trousseau, Bird, Annesley, Hutchinson, Cormack, Billing and Prout; it has also other links which connect it with zymotic febrile diseases.* Now as the malarial group possesses a specific in quinine, and the zymotic fever group a prophylactic in vaccination, the discovery of a specific against cholera ought not to be regarded as an impossibility, nor should the search after it be stigmatized as wasted time. We have heard that workers in copper and in sulphur seem to possess a certain immunity from the disease,† and Mr. Blacklock has stated—though few adopt his views—that he "cannot remember ever having seen or heard of any person marked by pits of small pox being affected with Asiatic cholera." This he wrote in 1866. He has recently informed me that he still holds by the opinion that a certain amount of protection against the disease is secured by recent vaccination and by antecedent attacks of variola. There doubtless exist both medicinal and allotropic specifics against the action of organic poisons, the discovery of which will, I trust, be the triumph of the scientific cell-therapeutics of the near or distant future.

Medical men of standing, Beale for example, give it as

* There are also some points in which the blood changes resemble those of pyæmia as indicated by Drs. Lewis and Cunningham.

† Dr. Shortt has shown that admixture with liquor potassæ renders inert even the powerful organic poison of the cobra—a fact which is denied by Fayrer, but which, if true, will some day be brought to bear upon the investigation of specifics against zymotic diseases. Carbolic acid does not destroy the specific virus of the Cobra.

their opinion that zymotic poisons are nearly if not entirely powerless in the presence of healthy blood, that, in short, healthy blood has the power of destroying the poison-germs. If this opinion be even approximately true, it follows that at least one efficient prophylactic against cholera exists in the "*mens sana in corpore sano*." The enemy within is as necessary to the successful assault as the enemy without, for the human system is itself an important factor in the determination of the disease, in the multiplication of the virus and in the manifestation of local and general symptoms.

In passing from theoretical to practical matters, I shall quote Niemeyer's words regarding his treatment of Cholera. "I believe the results of my own experience, with which I think I have reason to be satisfied, to be due simply to the fact that the treatment was chiefly directed against the symptoms of the intestinal mischief which in cholera is the essential lesion and the starting point of the disease."

During an epidemic of cholera he advises the adoption by all of a strict anti-diarrhoeal regimen, but he insists that the diet shall be sufficiently nutritious and not too bland and unstimulating. "On this account, therefore, during an epidemic of cholera, the moderate use of good Bordeaux, Madeira, or Portwine, is, as a rule, to be recommended;" again, "if a patient of mine suffer from diarrhoea with or without vomiting, he is told at once to go to bed, and to drink a few cups of coffee or tea, and by the application of hot bricks or bottles to try and induce copious perspiration." This treatment, namely, of maintaining an equable warmth, he insists upon equally in the subjects of commencing disease and of recovery from a severe attack of the malady, and he further insists upon restriction to bed until the passage of a formed motion, or until 24 hours have elapsed from the appearance of the last evacuation.

Niemeyer acknowledges the value of mixtures known to contain opium ethereal oils and stimulating tinctures so long as the symptoms show "that there is only a slight degree of catarrhal inflammation," though he holds that the only efficacious ingredient in them is the opium. "So long as the motions remain colored and somewhat homogeneous, I prescribe a few doses of the simple tincture of opium, about 10 drops every hour or two hours," *per contra*, "the more distinctly the violent inflammatory symptoms show themselves the less service will the use of opium render us."

"In this stage when the inflammatory condition is fully developed, but the symptoms of paralysis and thickening of the blood are not yet present, I prescribe for adults a grain of calomel every hour, or every two hours, and envelope the body with wet cloths well wrung out of ice-cold water. As often as the cloth gets warm, perhaps every quarter of an hour or every half hour, it must be renewed. If by means of this treatment the symptoms abate, especially the anxiety and oppression at the precordia, the cramps in the body, or even the frequency of the evacuations, the interval between the renewal of the cold application may gradually be extended to an hour, or even to two hours." "The treatment of the less advanced stages of cholera with calomel was attended with beneficial results." "The use of the remedy (calomel) appears to me also to be fully justified in cholera, from the beneficial effects said to be produced by it in other inflammatory and exudatory processes, especially those of the mucous membrane of the alimentary canal."

Experience tells us, that there is a point in the evolution of cholera at which the good effect of opium and of stimulants ceases,* and that point is the transition one from the so called choleraic diarrhoea to the characteristic rice-water evacuations with concomitant spasms and impending shock. Judging from my own experience cholera can neither be cured by opium nor by stimulants; whatever advantage may be derived from the administration of these remedies in the diarrhoeal period and towards the close of an epidemic, I am yet satisfied that during the more developed stages of the disease their employment is more disastrous than beneficial to the patient. The only treatment likely to prove of service in these stages is one calculated to arrest the progress of the intestinal lesion, and neither opium nor stimulants, apparently, can effect this.

"I place however," says Niemeyer, "by far the greatest reliance upon the use of cold applications (a mode of treatment first suggested by myself), and especially when they are energetically applied so as to act really as refrigerants and without producing any secondary increase of temperature." Again, "I believe there is no remedy of whose beneficial effects in congested states of the blood vessels, we have

* Diffusible stimulants perhaps excepted. I have found stimulants, however, of use in choleraic attacks of young children.

more accurate knowledge than we have of the application of cold. This has given it a primary place among the list of so-called antiphlogistics."—"The application of cold even in inflammation of internal organs is not only free from danger, but serviceable." Even in cholera patients in whom the asphyctic symptoms are most marked, Niemeyer advocates the continuous application of cold. "It is precisely in these stages of cholera that I have most energetically applied the cold application, and as I shall show further on, with the happiest results."

The mode in which the cold is applied is not in the form of pack, but simply in that of a sheet dipped in ice-cold water and applied to the body, the sheet being reapplied after a very brief interval when it becomes "in the slightest degree warm." Should the calomel at this stage fail to relieve the vomiting, he abandons it altogether, and simply administers small pieces of ice from time to time with ice-cold water as a drink to which a little white of egg has been added, the object being to give these refrigerants "in such a manner as not to be immediately rejected." From ice and ice-cold water he claims no immediate action upon the intestinal lesion, because on leaving the stomach they cannot "carry with them any great degree of coldness."* Should collapse continue after the intestinal symptoms have been relieved, a rare occurrence, Niemeyer treats the condition as one of ordinary shock, and advocates the employment of strong warm coffee, and the application of hot bottles and sinapisms to the extremities. Should the evacuations suddenly cease and indications of paralysis of the intestinal canal appear, he plies the most powerful internal and external stimulants, with the object—rarely attained—of re-establishing the vomiting and diarrhoea.

In the treatment of cholera calomel has been used in India, as in Europe, in every variety of dose and of combination. Dr. Francis, of the Bengal Medical service, recommends an initial dose of forty grains, and subsequent thirty-grain doses every second or third hour. Dr. Ayre, of Hull, recommended two-grain doses every five minutes during collapse, and every ten, fifteen, thirty or sixty

* He allows to the rich a little iced champagne, to the poor a little ether in cold soda water as a refrigerant drink.

minutes during reaction. Niemeyer, as we have seen, gives still smaller doses.

From time to time the treatment of cholera by calomel revives, as if there existed in the minds of medical men a conviction that that remedy exerts an influence for good upon the intestinal lesion; nor is this conviction entirely a delusion.*

During a severe epidemic of cholera which visited Hyderabad (Deccan) in 1859, I gave Dr. Ayre's system of treatment by small doses of calomel a somewhat extensive trial, and a still more extensive trial was made by Hukcem Mahomed Ushruff, under my directions, in the city itself. The results on that occasion were decidedly favorable, though subsequent experience did not prove quite so encouraging, a not unusual fact to record in the case of cholera. Salivation occurred in an inconsiderable percentage of the cases, and one if not more of the patients succumbed during recovery from mercurial cachexia and sloughing of the mouth and cheek. The first stools passed under Ayre's mode of treatment resembled so closely the well known admixture of calomel and lime water that I called them the *black-wash stools*, being in fact the black-wash resulting from the action of calomel on the alkaline secretions of the intestinal canal; these black-wash stools were generally succeeded by others of a dark green colour. Most of the patients did well in whom these evacuations were observed; they generally made their appearance some twelve or fourteen hours from the commencement of the treatment. In the severest cases of cholera calomel was powerless in arresting the local hypercemia.

The principal advantage to be anticipated from the administration of calomel in cholera depends upon the local action of the remedy for its constitutional action is to be avoided if possible. It must be remembered that a limited absorption only takes place from the bowel during collapse, and that the doses of calomel given during the algide stage accumulate in the intestine, to be more or less rapidly absorbed into the blood when reaction takes place.

* The value of grey powder, of calomel and of the bichloride of mercury in sudden attacks of infantile vomiting and purging, in chronic diarrhoea, in acute dysentery and in infantile cholera is generally recognized. Similar good results follow the use of very small doses of mercury in the diarrhoeas and dysentery of adults (see Ringer's Handbook of Therapeutics, 2nd Edition, pp. 175, et seq.).

It is true that a large percentage of cases escapes the constitutional effects of mercury, and it is likely that a still larger would result were the doses diminished as proposed by Ayre and Niemeyer.

All experience seems to be in favor of minute doses of the mercurial whether it be given in the form of calomel, of gray powder or of bichloride. It is an open question how far the local action of the mercurial might be secured and the constitutional avoided by following up, after a time, the repeated doses, given on Ayre's or Niemeyer's systems, during collapse with some mild laxative fitted to carry the remedy over the diseased surface, and to facilitate its passage out of the bowel. I adopted this plan, apparently with advantage, in instances where the *black-wash stools* had made their appearance.

In cases where special irritability of the stomach indicates implication of the pyloric end of that organ, the symptoms are sometimes arrested by a twenty-grain dose of calomel, and this fact, corroborates the views of those who attribute to mercurials a special power in controlling the inflammatory processes of mucous membranes. The same result, however, often follows the administration of a saline or of an ipecacuan emetic.

The treatment by calomel alone is more successful than that by calomel in combination with opium, with stimulants or with other remedies. Out of 191 cases Dr. Ayre lost 43, a mortality of 19.6 per cent. In the Synoptical Table given by Dr. Waring in his valuable Manual of Therapeutics, 1st edition, page 260, the mortality per cent of 376 cases treated by calomel alone, amounted to 36.59; of 196 cases treated by calomel and opium to 57.14; of 356 cases treated by stimulants, calomel and opium to 60 per cent; and of 285 cases treated by blood-letting with calomel opium and antiphlogistic remedies to 59 per cent. Niemeyer, whilst recognizing the value of calomel in cholera, places it as a therapeutic agent, below the external application of cold.

Recently I have given Dr. Stevens' Saline Treatment a fair trial, as opportunity offered, at the General Hospital, and, whilst acknowledging that its power of arresting the local action is problematical, I yet recognize that it does no harm to the mucous membrane, and that its influence upon the general symptoms is upon the whole beneficial. By its means the blood is partially supplied with water and salts,

its venous character is diminished, and at the same time a not inefficient stimulus of the heart's action is provided. In the less severe types of cholera the treatment by salines, as advocated by Dr. Stevens, secures a fair modicum of success.

Dr. Stevens' remarkable success in 1835 at the Cold Bath Fields prison has neither been repeated nor approached to. Out of 504 cases treated by salines he lost 41 or about 8 per cent. Dr. Waring's table, already referred to, gives somewhat perplexing results. Out of 88 cases treated by Dr. Stevens' combination of salts 67 died or 76.3 per cent; of 107 cases treated by the Greville street combination of salts with cold water (whatever that may be) 15 died or 14 per cent; and of 607 cases treated by salt and cold water alone 112 died or 20 per cent. In an epidemic of moderate severity, and when the cases are early seen, the mortality from the saline treatment may be expected to average about 35 per cent, the mean rate from ordinary modes of treating the disease being about 50 per cent.

As regards the success of various methods of treatment, the following table, drawn up from the experience of the London Hospital and quoted in the "Report on Practical Medicine" by Dr. Anstie (vide Biennial Retrospect of Medicine and Surgery for 1865-66), is interesting. The results show that therapeutic failures are by no means confined to India.

Treatment.	Cases.	Died.	Recovered.	Per cent of Recoveries.
Mist: Astringens (logwood, ether, sulphuric acid, camphor and capsicum) ...	48	31	17	35.4
Mist: Rubra (sugar and water.) ...	56	28	28	50
Castor oil ...	21	14	7	33.3
Saline Lemonade ...	20	6	14	70
Mist Ant. Tart. (Tartar Emetic and Sulphate of Magnesia). ...	2	2	0	0
Mist. Quin. & Ferro ...	3	1	2	66.6
Lead pill (Lead, Camphor, Opium and Creasote). ...	9	4	5	55.5

The various modes of treatment here recorded give an average of 46 per cent of recoveries. The expectant treatment yields 50 per cent; the castor oil treatment, so strongly recommended by Dr. Johnson, 33·3; and the saline treatment 70 per cent.

I may mention here that I am somewhat impressed with the belief that antimony may ultimately prove to be one of the most efficient means at our disposal for combating the local hyperæmia in cholera. The intestinal canal is an extended surface of glandular tissue, and in cholera a considerable portion of that surface is the seat of acute specific inflammation, the glands taking their share in the general pathological condition. Now antimony is specially valuable in acute inflammations of glandular textures, witness its action in acute inflammations of the brain, lung, liver, kidney, mamma and testis, a value considerably enhanced, at times, by combining it with opium. Its action moreover upon the gastro-intestinal mucous membrane is distinctly beneficial in consequence of the power it exerts over the glandular secretions of the bowel. Experience enables me to state that in the treatment of sthenic inflammations of glandular structures few remedies can compare in efficacy with antimony. Another remedy of nearly equal value in congestions and inflammations of the mucous membrane of the intestinal canal is Ipecacuan. Ipecacuan in large doses has been recommended "during the period of intestinal paralysis" by Dr. Viseur of Posen. It has also been recommended to give the drug in 20 grain doses every quarter of an hour. The treatment of cholera by Ipecacuan, however, has not been successful. Waring's table gives the per centage of mortality as 57; that from Tartrate of Antimony being entered as 19; the same table gives the mortality from salt and cold water as 20. Antimony has been frequently tried in cholera, sometimes in large doses* at other times in small, sometimes alone, at other times in combination with opium. An experimental inquiry into the action of the remedy in cholera is still a desideratum.

It is entirely beyond the scope of these notes to discuss the various suggestions made by medical authorities to treat cholera with such remedies as Belladonna, Arsenic, Veratrum, Camphor, Sulpho-Carbolate of Sodium, &c., or to review older remedies, coextensive with the Pharmacopœia, which have been tried and retried without avail a

* Dr. Barnard of Calcutta has used antimony in very large doses.

thousand times, but the opinion may be hazarded that it is to remedies which control and change cell force we must look for the efficient and scientific treatment alike of cholera and of many other diseases. The investigations of Richardson, Harley, Anstie, Brown—Séguard, Fraser, Erlennmeyer and others are so many independent shafts dug to give us a view of the very foundation stones of pathological science. The work may be tedious but it is work in the right direction.

(To be continued.)

ART. VI.—*On the effects of the use and abuse of Bazaar preparations of Indian Hemp.*

(Communicated by the Inspector General, I. M. D.)

General history of (Indian Hemp) Cannabis sativa. The botanical name of the hemp is derived from the term *κάρραβις*, by which it was known to the Greeks, and the plant is a native of Persia. The variety known as *Cannabis Indica* is identical with *Cannabis sativa* cultivated in Europe, but the plant, as reared in the tropics, yields little or no fibre but contains a resinous product, whereas the European plant abounds in fibre and produces only a very small quantity of resin. This resinous secretion gives to the Indian hemp its peculiar intoxicating and narcotic properties. Hemp has been used in India and the East from very ancient times as an intoxicating agent, and it is said to have been employed in China, by a celebrated physician, as an anæsthetic in the third century of the Christian era. He is reported to have used a mixture of wine and hemp powder, and by its means to have rendered his patients insensible to the pain of severe surgical operations. Rumphius, in his *Herbarium Amboinense*, notices the intoxicating effects of hemp as witnessed by him in the East, and calls it the *Herba stultorum*. Linnæus speaks of its power as "*vis narcotica, phantastica, dementens, anodyna et repellens*;" and Dr. Royle in his "*Illustrations*" mentions various epithets applied to it by the Arabs, as indicative of its effects and repute. These are "*grass of faqueers*," "*leaf of delusion*," "*increaser of pleasure*," "*exciter of desire*" and "*cement of friendship*."

The intoxicating effects of hemp are also popularly known in the north and south of Africa, in Turkey, Persia, Arabia, South America, and in the Malay Peninsula. It is also known to the Burmese and Chinese, but both these seem to

prefer opium as an intoxicating agent. A very interesting article on the products of the Indian Hemp plant will be found in the Bengal Dispensatory of Dr. O'Shaughnessy, who was the first to test their powers and to introduce hemp to the notice of the profession as a medicinal agent.

Bazaar preparations of Indian Hemp, &c.—In Southern India three preparations of the hemp plant are sold in the bazaars, viz., *ganjah* or the dried flowering stalks, *bhāng* the dried leaves, and *majoom*, a confection made from *bhāng*. Of these three, *ganjah* is the most commonly used in this Presidency, and the mode of taking a dose is as follows:—A small quantity of the preparation is taken, slightly moistened with water, rubbed in the palm of the hand and then put in a pipe and smoked. One pie worth of *ganjah* used in this way and weighing, at the rate it is sold in the town of Madras, 50 grains, is said by Honorary Assistant Surgeon Moideen Sheriff to be sufficient to produce intoxication in one or two persons. The cheapness and potency of this preparation of hemp are doubtless the chief causes of its being more generally used than either of the other two forms. It is impossible to arrive at even an approximate idea as to the numbers addicted to its use, but from all accounts, the habit of *ganjah*-smoking would appear to be almost entirely confined to the lower classes, and chiefly to the more indolent amongst them, and in the little parterre or backyard of a faqueer a bush or two of the hemp plant is generally found growing. The active and hard working amongst the poorer classes in Southern India, when addicted to stimulants, as many of them are, generally resort to some alcoholic beverage. *Bhāng* is used in the shape of a drink prepared in various ways, and chiefly consumed by the better classes. There is no available information as to the extent to which it is used, but as it is sold in nearly every village; probably a good many of the more strict Mahomedans and Hindoos, who would shrink from spirituous liquors, resort to it as a mild intoxicant. *Majoom* is also generally exposed for sale, and appears to be chiefly consumed at night, with the double object of avoiding detection of the habit, and securing the aphrodisiac effects of the drug, for which object the leaves are also applied externally. The Civil Surgeon at Cuddalore states, that the custom of taking it at bed time for the latter purpose is exceedingly common amongst the better classes of Hindoos in that part of the

presidency. On the whole Mahomedans would seem to be more addicted to the use of hemp preparations than Hindoos, and to prefer *ganjah* to *bhāng* or *majoom*. There is no evidence to show that any of the European or Eurasian population indulge in hemp; alcoholic liquors being the favorite stimulants amongst these classes. The use of hemp as an intoxicant seems, therefore, to be entirely confined to eastern races or those living within the tropics; and this is what might be expected, as it is only under a tropical sun that the *Cannabis* produces the peculiar resin which gives it narcotic and stimulant properties.

Effects of the moderate use of Indian hemp.

(a.) *On the mental faculties and nervous system.*—The immediate effects of a moderate dose of Indian hemp would seem to be as follows. A pleasant kind of intoxication is produced, during which languor, dejection or fatigue is banished. The mind is filled with pleasant ideas, which succeed each other rapidly, there is a tendency to boisterous mirth which finds vent in singing, laughing or dancing, the appetite is increased and there may be some aphrodisiac excitement. The effects will, of course, differ somewhat according as the person has been accustomed to the use of the drug or otherwise, and according to the natural disposition of the individual. Thus in some it seems to act as a calmative, producing a quiet contemplative mood, while others are rendered irascible and quarrelsome. After the stage of excitement the narcotic effects of the drug are manifested, the person feeling an inclination to go to sleep. Assistant Surgeon Moideen Sheriff points out that the three bazaar preparations of hemp produce different kinds of inebriation. Briefly, his remarks would seem to show that *ganjah* produces a high degree of mirthful or emotional excitement, that *bhāng* induces a quiet contemplative happy mood, and that *majoom* has little or no exhilarating effect on the mental faculties, but is chiefly used as a calmative and soporific, and probably as an aphrodisiac. Such are the effects of single moderate doses of the bazaar preparations of hemp, and it now remains to consider the results of the habitual use of these articles.

From the appended tabular statement of the views of medical officers, it will be seen that they differ in opinion as to the effects of hemp on the mental faculties and nervous system, some believing that its prolonged use in mode-

rate doses has no prejudicial effects, while others think that habitual indulgence is injurious. This diversity of opinion may, perhaps, be explained by facts brought forward in Asst. Surgeon Moideen Sheriff's report, viz., that while the use of ganjah is highly injurious, that of the other two preparations does not seem to be followed by any ill effects. It is quite possible, therefore, that the reporters, who believe that the prolonged case of hemp is innoxious, may have only seen cases in which the milder preparations of the plant were indulged in. That confirmed ganjah smoking is injurious to the mental faculties and nervous system seems beyond all doubt, but from what we know of the results of the habitual use of other narcotics and stimulants, it may certainly be inferred, that the confirmed smoker is not content with moderate doses of the drug. In the case of every one of this class of neurotics, habit gradually reduces their stimulant or narcotic effects on the system, and thus as the practice is continued the dose must be increased to produce the desired effect. It is in this gradual increase that the great danger lies to the spirit-drinker and opium-eater as well as to the ganjah-smoker, and were it possible for those addicted to such vices never to exceed in quantity or number, the doses which can be tolerated by those unaccustomed to their use, there is nothing to show that indulgence would be injurious. When the appetite is once fully acquired, however, such control is extremely difficult, and the habits of opium-eating and ganjah-smoking would appear to be even more seductive and less amenable to the dictates of reason and the influence of the will than spirit-drinking. I believe, therefore, that in nearly every case the confirmed ganjah-smoker greatly exceeds the bounds of moderation, and that from this circumstance the habit, in course of time, has a most injurious influence on the mind and nervous system generally.

(b.) *On the General Health.*—It will be observed from the tabular statement, that very few of the reporters offer any opinion as to the effects of the moderate use of hemp preparations on the general health. Surgeon Joseph, M.D., L.L.D., states that their continued use induces debility, and mentions that if a bhāng-eater holds his arm in a perpendicular direction for two or three minutes, the pulse at the wrist becomes imperceptible. This indicates enfeebled action of the heart; and another observer records the fact that those addicted to the use of the drug frequently suffer from palpitation.



With reference to its influence on the digestive organs, Assistant Surgeon Moodeen Sheriff says, that ganjah is supposed by the smoker to improve the appetite and keep the bowels open. He is evidently of opinion, however, that such effects are only experienced during the earlier stage of the habit, as he immediately remarks, "whatever may be the actions of this drug at the commencement, its prolonged use produces very injurious effects on the system." Another reporter says that ganjah smokers suffer from dyspepsia and are liable to phthisis and hæmoptysis; and the Civil Surgeon of Henzadah observes that the use of ganjah or bhang in the long run proves injurious to health. None of the reporters, with the exception of Assistant Surgeon Moodeen Sheriff, allude to any difference between the ultimate effects of the prolonged use of ganjah and of the other two preparations of hemp. He points out that while ganjah is very injurious, bhang and majoom have no prejudicial influence on the general health. Regarding bhang he observes, "the persons who are used to this drink (prepared from bhang) are generally in good and robust health, and have a voracious appetite with an equal increase in the power of digestion." With reference to majoom he remarks, "it is free from the excitement and other bad effects of ganjah." The general opinion of the several reporters is, therefore, in effect, that although ganjah-smoking may, in the earlier stages of the habit, increase the appetite and power of digestion, it ultimately has most injurious effects on the general health, which will be more particularly mentioned when noticing the results of the abuse of hemp preparations.

(To be continued.)

ART. VII.—*A case of Lipoma.* By SURGEON JOHN SHORTT, M. D., &c. (Illustrated).

W. W., East Indian, ætat 57, height 5 feet 10 inches, weight about 112 lbs. Married, some thirty-three years. Father of 10 children, has 4 girls and 2 boys now alive, 2 boys and 2 girls died when young; of dissipated habits, constitution apparently deteriorated from want and intemperance. Has been out of employ for the last ten years and gains his living by begging and assistance from friends.

Description of Tumours.—There are five pendulous tumours from the upper part at the verge of the arch of the nostrils,

two on the right and three on the left, the width of these taken as a whole is three inches, they hang down by short peduncles, enveloping the point of the nose and closing the openings of the nostrils. The tumours on the right are about the size of a pigeon's egg, those on the left are somewhat smaller; a third and smaller tumour surmounts the two on the left. Both upper eyelids are affected with a tumour each, that on the right is the larger, about the size of a good marble and hangs over the eye and partly obstructs vision. Has two other tumours on the malar bones, that on the right is the larger of the two, and there are two others forming on the cheek, they are now about the size of a large pepper-corn. The tumours are soft, rounded and smooth, but on the upper part of the nose and on the left cheek there are some small wart-like excrescences.

Patient's statement.—States that to the best of his recollection the lumps on his nose and face made their appearance some time in 1857. "They came out like small pimples and gradually attained their present size. In 1864 I suffered from cataracts in both eyes, and was obliged to place myself under the care of Dr. G. Smith, at the Eye Infirmary, and both eyes were successfully operated on for the removal of the cataract." Is now able to go about pretty well without assistance. States that whilst a patient at the Eye Infirmary Dr. Smith applied Iodine to the nose, but that it did not do him any good. The tumours have been on the increase during the last few years, but his general health is good.

I remember this man at Arcot in 1849. He was then a clerk in the Abkary Farm at that station, and as a young man was smart and intelligent, he held a responsible post at the time. His nose then was large, but there were no irregularities about it. Some years after I again met him at Madras when his nose had increased in size, was of a florid colour, and had some trifling irregularities on its surface, and was looking very vascular. I then lost sight of him for several years till I met him the other day accidentally.

I believe he consulted several medical men and was advised not to have the tumours removed. I think myself that they can be easily removed, and that his general appearance can be greatly improved, the only thing perhaps against him are his dissipated habits, and as the disease is not of very common occurrence, I submit this brief account with a photograph of the patient for insertion in the *Madras Medical Journal*.

ART. VIII.—The Apothecaries' Ounce Weight.

[The following 'Notes and Queries' have been forwarded to us by a contributor under a *nom de plume*. We would draw the attention of our readers to the remarks herein made.—*Ed. M. M. J.*]

I have been young and now am old, and never have I seen an "Apothecaries' ounce weight.* Have you or any of your readers ever seen one? Has any one ever seen one? Are they, or were they ever, made?

In the "grain" set of scales and weights supplied to the Department, the weights never go beyond 3ii; and in the "four ounce" set issued, as also in the larger (pound) set, the weights are, naturally enough, Avoirdupois weights. Where, then, does the subordinate get the "ounce" of 480 grains which he loves to deal in, to divide and subdivide, and juggle and mix up, and try to puzzle himself and every body else with?

Hold up an (Avoirdupois) ounce, and ask, "How many grains?" Ninety-nine times out of a hundred an audible calculation of multiplying sixty by eight will be performed, and you will be told, "Four hundred and eighty grains!" The experiment is worth trying for its amusing constancy of result.

The subordinate learns his table of "Apothecaries' weight" at College it is to be presumed; but it is a pity that his instructors don't go one step further and tell him that the ounce of 480 grains in which he is so well pleased is non-existent, a mere fiction; and that the only ounce he is ever likely, by any chance, to lay hands on is the Avoirdupois ounce of 437½ grains.

The look of incredulity not unmixed with pity with which a "darned old kuss" like myself gets greeted when he ventures to assert that the ounce in common use is not

* I don't mean that there are not *Troy* ounces and pounds to be met with. They are of the same weight as the corresponding weights of the "Apothecaries' scale, but they taper up into penny weights and carats instead of into drams and scruples, and are accordingly not Apothecaries' weight. Troy weight, we are told, is "used for weighing gold, silver and precious stones," which makes it all the more foreign to the Indian Medical Department of the present day.

480 grains, is a sight worth seeing. And is the faith in the ounce of 480 grains shaken at all when I weigh it before my incredulous friends, and find therein but 437 grains? Not a bit! *It contains 480 grains for all that!* Galileo himself couldn't be more obstinate than a subordinate in such a case. If I would only kindly abstain from confusing the whole thing, and playing the mischief with the weights, it would come right enough: that's all! Truly "we walk by faith, not by sight," and it is to be regretted that such a goodly, beautiful, courageous and constant faith as that of my friends in their ounce of 480 grains should have any drawbacks. It has a few however.

At the present time of day it ought to be unnecessary to transcribe the tables of Avoirdupois weights and Apothecaries' weights for any grown up person's information: but experience tells me that it can't do any harm. Here they are.

APOTHECARIES' WEIGHT	Pound.	Ounces.	Drams.	Scruples.	Grains.
In which both the	1	12	96	288	5760
pounds and the ounces					
are non-existent					
	...	...	1	8	24
	...	...	...	1	3
					60
					1 = 20

AVOIRDUPOIS WEIGHT...	Pound.	Ounces.	Drams.	Grains.
	1	16	256	7000
		1	16	437½
			1	27½

The grain is the same in each case. Nothing else is common to both series. A particularly ingenious and mischievous piece of stupidity was the dividing one ounce into eight (8) drams, and the other (smaller) ounce into sixteen (16) drams. It may indeed be doubted whether this was not done for the fun of the thing—a pitiful joke. The chief points of difference are,

	Apothecaries Wt.	Avoirdupois Wt.
Grains in the Pound. ...	5760	7000
Ounces do. Pound. ...	12	16
Grains do. Ounce. ...	480	437½
Drams do. Ounce. ...	8	16
Grains do. Dram. ...	60	27½

Practically we know that the 3ii. weight of 120

grains and the

½ oz.

of 108 grains are used

indiscriminately; as are the 3i. and the

⅓ oz.

The latter is complacently called "one dram;" its presumed twin brotherhood with the 3i. being alone taken into consideration, and its forming the *two* drams of its own scale being firmly ignored.

The real dram

⅛ oz.

of the Avoirdupois scale

is rarely seen. What happens it? Their being already *two* other drams in the subordinate creed, this, rightful heir to the title though he be, can hardly expect to be well received; and after being put up with for a longer or shorter time, he is at length quietly disposed of. The dropping him down the sink is held to be a meritorious action, and he is drowned amid the plaudits of all good men. Such is, I fancy, the process. However I have had interviews with the *padres* of several denominations here, and have requested them to elicit information on this head from every subordinate *in extremis* they may hereafter come across.

It was probably to follow the division of the Avoirdupois ounce into 16 drams that the order was issued in our department to enter fractions of the ounce in sixteenths. With the greatest respect, I can't help thinking the order a mistake. Men who don't know what an ounce is, are not likely to be accurate about sixteenths of an ounce. It in-

volved a most repulsive looking multiplication table,* and notwithstanding its minutely fractional appearance, and pretentious claim to accuracy, it was just as inaccurate as any other plan. If your quantities fell into sixteenths of an ounce well and good: but suppose they didn't? The distance from one sixteenth to another is a long one; and you had either to put down what you thought the nearest sixteenth, or else rule another column for the odd grains, and add to the disgusting appearance of your unlucky return. One hundred grains (100 grs.) of Strychnine for instance, (a medicine which we can't be too accurate about), would be, by one person, returned as $\frac{3}{16}$ ths; by another $\frac{4}{16}$ ths, by a third $\frac{33}{16}$ ths, and by a fourth $\frac{3}{16}$ ths, + 18 grains. None of these I fancy, putting the inaccuracy of the first two out of the question, are at all as intelligible as the simple "100 grains" which they sought to translate into official sixteenths.

The chief objection to the "sixteenth" order was, as will now be readily understood, that it lead away from, instead of towards the only true plan, viz., entering everything below an ounce in *grains*. This is what, since 1864, the B. P., has recommended. I happen to know that even before that time stock books have occasionally been kept in grains in this Presidency; and that there is no difficulty whatever about it.

It is curious that notwithstanding the strongly expressed desire of the B. P., that no weight shall intervene between the grain and the Avoirdupois oz., we still receive the old square weights in our scales boxes, viz.

⊖ ss.	⊖ i.	3 ss.	⊖ ii.	3 i.	3 ii.
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* Table of sixteenths of an ounce, or twenty-seven and one-third times!

$\frac{1}{16}$ ths.	=	27 $\frac{1}{3}$ grs.
$\frac{2}{16}$ ths.	=	54 $\frac{2}{3}$ "
$\frac{3}{16}$ ths.	=	82 "
$\frac{4}{16}$ ths.	=	109 $\frac{1}{3}$ "
$\frac{5}{16}$ ths.	=	136 $\frac{2}{3}$ "
$\frac{6}{16}$ ths.	=	164 "
$\frac{7}{16}$ ths.	=	191 $\frac{1}{3}$ "
$\frac{8}{16}$ ths.	=	218 $\frac{2}{3}$ " and so on.

Would not 10 gr., 20, 30, 40, 50, 100, 200 and so on be better, and more conducive to the much desired uniformity? Could not such weights be made in Madras? Before winding up I may as well put my friends the subordinates in good humour, by assuring them that they sin in excellent company, and that the mistakes pointed out above are not by any means unknown in the higher ranks of the profession.

As an instance, I may refer to the prescription for "Paterson's Cholera Pills" to be found at page 74 of the volume of Quarterly sheets for 1866. "1 ounce and 1 scruple," we are informed, amount to 500 grs. as "each pill" (of the thousand into which the mass is divided) "contains calomel, opium, camphor of each half a grain" and so on. We know now that this is just what they do not contain. To make the calculation correct, the ounce should contain 480 grains, which it does not. If "3viii," or "480 grains" had been written instead of a non-existent "ounce" it would have been all right.

I was amused the other day, to see in a Medical stores a huge bottle of these pills with the prescription in full "for ten thousand pills" on the outside calomel "10 ounces and 10 scruples" and so on. In reply to my inquiry as to how they weighed the ingredients I was introduced to a goodly pair of big scales, and (of course) my old friends the Avoirdupois weights.

ART. IX.—Report on the prevalence of *Cysticercus* in the ration beef at Jullundur, Punjab, with observations as to the probable sources of infection, and the results of the consumption of this meat as an article of food.

(Communicated by Inspector General, I. M. D.)

CYSTICERCUS was first noticed here in the beef tendered at the Royal Artillery ration stand in May 1868. For some two years previous to this date, condemnations of cyst-infected meat had been frequent at Peshawur, Rawul Pindee. Meean Meer and several other stations in the upper part of the Punjab, and here I had often detected the parasite in meat exposed for sale in the bazaars, but no trace of it had been observed in the Commissariat beef, either by myself or any other medical officer who had preceded me.

From May 1868 to November 1869, cyst was more or less

frequently found both at the Artillery and 92nd Highlanders ration-stands; but since the latter date, it has almost entirely disappeared.

The following table shows the quantity of meat destroyed on this account during 1868 and 1869.

Years.	Months.	Number of cattle infected.	Weight of meat destroyed.
1868...	May ...	4	412 lbs.
	June ...	1	77 "
	September ...	1	130 "
	October ...	10	1,763 "
	November ...	14	2,010 "
	December ...	12	1,785 "
1869...	January ...	21	4,062 "
	February ...	16	2,341 "
	March ...	14	2,209 "
	April ...	5	856 "
	May ...	2	220 "
	June ...	1	122 "
	July ...	1	194 "
	August ...	3	464 "
	September ...	2	218 "
	October ...	4	615 "
Total...		111	17,478 lbs.

The whole of this meat was otherwise well fed and of excellent quality. The waste of so much good food led me to make enquiries; first, as to the sources from which the cattle obtained the *tœnia* ova, and the best means for preventing their infection; and secondly, as to whether or not any evil results followed the consumption of this meat when properly cooked.

On the former part of the subject, from information obtained from the Commissariat Officer, I found;—

1st.—That the infected cattle had been purchased by

native dealers from various parts of the district, not from any particular locality.

2ndly.—That when brought in, they were lean, and on an average required from two to three months' feeding at the Commissariat cattle yards before they were fit for the shambles.

3rdly.—That their food consisted of the grass they could pick up on the grazing grounds of cantonments, supplemented by such an allowance of grain and bhoosa as their condition required.

They were supposed to be watered at a trough with water drawn from a well, but on closely enquiring as to this, it transpired that they very frequently were taken to a large dirty tank near the yard for their water. The question which occurred to me was, were the cattle infected before their purchase by the Commissariat, or was there anything in their feeding to account for it after purchase? I am inclined to the latter opinion for several reasons, thus:—

1st.—In the large number of the diseased cattle, the *cysticercus* were of remarkably small size; many of them having no capsules, except such as were formed by the surrounding structures, and not being more than $\frac{1}{8}$ to $\frac{1}{4}$ of an inch in diameter.

Although the dry food given to the cattle was doubtless good, still much of the water they got during 1868 was probably filthy. The tank previously referred to was situated close to the huts of the camel drivers. These men are all Mussulmen from Cabul, Peshawur or thereabouts, and many of them are infected with *tœnia* *mediocanellata*. Human filth was often to be seen on the banks of the tank, and microscopic examination of mud and stagnant water taken from the margin, exhibited *tœnia* ova.

"Moisture," says Dr. Aitken, "is favorable for maintaining the existence of the eggs," whilst Cobbold states, "pond, canal, and even river water procured from the neighbourhood of human habitations are liable to harbour the embryos."

The conditions above shown must have been eminently favorable to keeping up a constant supply of ova, and the fact that *cysticercus* entirely disappeared from amongst the cattle a few months after means had been taken to secure them a good supply of well water, seems to confirm the view that this tank must have been the source of a large amount of, if not all, the infection.

It has been suggested that cysticercus can be detected before the animal is killed, by an examination of the tongue. In exceptionally severe instances this is probably correct, but then it would be equally observable in some other parts of the body. Major Biggs, Commissariat Officer here, tells me of an animal he saw at Rawul Pindie, in which immense clusters of cysts could be felt at the root of the tongue and under the skin in several parts. Lenchart also, in his experiments on calves fed with proglottides of *tenia mediocanellata*, records an instance in which the muscles were found filled with measles. After examining a very large number of tongues of cysted animals, my experience is that it is found in the soft muscles and cellular tissues at the root of the tongue, perhaps more frequently than anywhere else; but I have never seen a case in which there was a chance of detecting it before death.

The most common situations in which it has occurred in the ration meat have been the gluteal, psoas, and lumbar regions. In many instances only from one to ten cysts have been found on cutting the carcase into small pieces, and I have no doubt that it often passed without detection. Although not strictly connected with the subject of this report, it is perhaps not out of place here to remark upon the extreme frequency of hydatid disease of the liver in the cattle of this part of India.

During some three months' regular observation of the animals killed at the Commissariat slaughter house here, at least 70 per cent. of the beef livers may be calculated as thus affected. Cobbold writing of the *tenia echinococcus*, says that "this little tapeworm infests only the dog and the wolf." Therefore considering the immense number of pariah dogs fed on the refuse of animals infected with hydatids, it seems more than probable that the parasite must attain its strobila condition in their intestines, and through them be eventually disseminated over the pastures on which the cattle graze.

During 1868 and 1869, I from time to time obtained pieces of beef badly infected with cysticercus, and made some experiments as to the results of its consumption under different conditions.

After explaining to them the possible consequences of eating it, a buttock of beef studded with cysticercus was given to three natives of low caste. They all declared that they were free from *tenia*, or to use their own term,

"Kadhu dana." The meat they cooked in their own way. These men were under my observation for some six months. Two of them had no symptom of *tenia*, but the third, who was a low class Mahomedan syce, and had probably eaten the meat in a very raw state, developed a *tenia mediocanellata* in about three months.

2nd.—My own sweeper ate this cyst-infected beef regularly two or three times a week for some months. He cooked it well generally as an ordinary stew, and has never shown a sign of having tapeworm.

3rd.—Into the food of a boy of low Hindoo caste, but who had never eaten beef, two scolices of cysticercus were surreptitiously introduced, the result being that, between three or four months afterwards, he applied for some tapeworm medicine. This from the few segments that could be obtained was a case of *tenia mediocanellata*.

The following observations also have a strong bearing on this point.

1. In December 1868, a Non-Commissioned Officer and his wife partook of a piece of roast beef which afterwards they found to be badly cyst-infected. This was ration beef, and the remainder of the carcase, many parts of which were in all probability also infected, was issued to the men of the battery, and apparently without much ill effect: for during 1869, but two cases of *tenia* (both *mediocanellata*) occurred amongst the men of the battery, whilst on the other hand this must have been far from an isolated instance of the parasite having escaped detection at the ration stand.

2. A return kindly furnished by Dr. Ross, Surgeon 92nd Highlanders, shows only two fresh cases of *tenia* from the arrival of that regiment here to the close of 1869. During the earlier months of the regiment's stay, the men probably consumed considerable quantities of cyst-infected beef; the presence of the parasite not having been detected at their ration stand for some time after it was noticed in the Artillery meat, and subsequently it doubtless often escaped detection as with the Artillery.

3. In December 1869, I accidentally discovered that a rump of beef of prince quality; my share of an animal killed for distribution amongst the members of a beef club, contained a considerable number of cysticerci. Having eaten a good part of the joint as steaks, no doubt I consumed some of the parasites, and furthermore, although their pre-

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sence was unnoticed by either of the other eleven members of the club, several of these persons or their families must also have partaken of cysticercus. Happily no evil results have followed in my own case or so far as I can ascertain, in either of the other consumers.

Tœnia mediocanellata is very common amongst the Musulman population of the Punjab, and from reliable sources I am informed that the lower classes amongst them are in the regular habit of eating half-cooked beef; indeed prefer it so, and it is amongst these people that tapeworm is so prevalent.

These results indicate that the question as to the safety or otherwise of eating cyst-infected beef simply depends upon the manner in which it is cooked. If this meat is thoroughly done, and presents no rawness when cut into, the measles appear like little nodules of coagulated albumen, are doubtless perfectly inert, and may be eaten with impunity.

But it is not only thorough cooking that is required to guard soldiers in India from the ill effects of eating measly meat. There is want of cleanliness in the general arrangements of the kitchens, and serving of meals, which must offer great facilities for the introduction into the food of cysticercus.

Barrack cooks, unless constantly looked after, are utterly careless as to the washing of chopping blocks, tables, dishes, &c. The dish or pot cover on which the meat is placed when raw, is often used without washing, for serving the piece up for dinner, and I have myself picked up a cysticercus from the table on which a cook was preparing food. The dangers too of the parasite being conveyed by the cook's unwashed hands to the plates in which the meals are served, and the common practice of using the same knife for cutting up meat, and afterwards without washing it for other culinary purposes, must not be overlooked. With good selection and careful feeding, there seems to be every probability that cysticercus would soon almost or completely disappear from our Commissariat cattle. If they were entirely stall-fed and watered from wells, there could scarcely be a possibility of infection after their purchase.

Perhaps with the trench system of conservancy, which will necessitate the growing up crops, a sufficient quantity of root and other green produce may be obtained from

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cantonment lands set apart for this purpose, to supply green fodder for the cattle.

At the same time more efficient supervision of the cooking and serving arrangements are without doubt requisite, both to see that all food is properly cooked, and that everything is done in a thoroughly cleanly manner.

Memorandum from Deputy Inspector General of Hospitals, Her Majesty's British Forces, Peshawar Circle, to the Inspector General of Hospitals, British Forces, India, dated Rawul Pindee, the 28th February 1870, No. 99407.

With reference to memorandum No. 986-M.O., dated 4th October 1869, the undersigned has the honor to submit rolls of the respective corps in this circle, in which *tœnia* has principally prevailed, together with the observations made by the medical officers who had been charged with the duty of ascertaining the certainty or otherwise of the use of cyst-infected meat developing *tœnia* amongst the troops.

The most trustworthy example is that of the 1-6th Regiment, which arrived at Rawul Pindee on 12th March 1868, almost direct from England, and it may be thus fairly supposed did not contain soldiers in any considerable proportion affected with *tœnia* prior to embarkation.

The undersigned has himself examined the cyst meat under the microscope in 1868 and 1870, and has verified the embryo on both occasions to be that of the head and neck with four suckers of the ordinary *tœnia* contained in cysts, regarding which there are European records testifying to their undoubted capability, when eaten with animal food, of producing *tœnia* subsequently in the alimentary canal.

Amongst the rolls forwarded from the medical officers who have been tracing the history of *tœnia* cases in this circle, it will be observed that men, women, and occasionally even young children, have been affected with the parasite, and that these have, with hardly any exception, attributed the complaint to the use of meat.

The cyst disease is believed to be endemic among the cattle in this part of India, so much so that the best conditioned animals are the most frequently cyst-infected. The high proportion of soldiers' families who suffer from *tœnia* would point to the fact that extra meat, probably cyst-infected, purchased by them in the bazaar, has had a decided

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influence in procuring the occurrence of tapeworm amongst them.

How far careful cooking would succeed in procuring the entire destruction of the vitality of the embryo *taenia* in their cysts, the undersigned conceives that it is probable that this desirable end might be effected by prolonged roasting or boiling, but would recommend that those portions of cyst-infected animals, viz., the gluteal muscles and the shoulders, the parts generally infected with vast numbers of cysts, should still be rejected, when the existence of the parasite is very abundant. The officers use mutton in preference to beef, and there is no evidence of any case of *taenia* having originated amongst them.

OBSERVATIONS.

THE patients themselves attribute the parasite to various sources such as drinking water, (especially that of Peshawur) fruit, bacon and beef; and putting aside fruit, these are the usually accredited sources of *taenia* in the human intestine. As regards water and country-fed bacon, the better class of civilians, as well as military officers make use of both under precisely the same conditions as the British soldier, and yet on strict inquiry the former are not found to suffer from tapeworm to anything like the same extent, if indeed at all. In favor of the view of the communication of tapeworm by means of the *cysticercus cellulosus* so common in the cattle of the Punjab, the concurrent frequency of the two parasites is, to say the least of it, a very suspicious coincidence. During my own period of service in the North-Western Provinces with a regiment of Infantry, I met with only three cases of tapeworm, two of which were believed to have been contracted on board-ship. I may mention that I only once saw the cyst in cattle offered for regimental consumption: officers, it may be said, occasionally make use of the same beef without apparent ill results, but that fact would easily be accounted for by the notorious carelessness of the British soldiers in eating imperfectly cooked food. I observed that during the hot weather of 1868, a large proportion of the beef offered for use was cyst-infected, and though selection and condemning the worst portions were freely exercised, yet I believe that cysts were very commonly consumed by the men at the time: hence probably the large number of first cases in the D-F and E-19th observed *en route* to Agror

in autumn of the same year. As regards the immunity or otherwise of certain castes of native troops, and others, there is some difficulty in procuring reliable evidence—perhaps from some sense of disgrace connected with the disease in the case of the better class of sepoys, but I am assured by the principal medical officer of Indian Troops that the men appear to be affected with tapeworm to a very trifling extent; these men, I would remind the Deputy Inspector General, are chiefly Mussulmans, who eat *beef*, but that their mode of cooking, either cutting it previously into very small portions, or boiling it to rags, would effectually destroy the vitality of the cyst contents. The fact of the comparative freedom of natives of all classes from the disease precludes the likelihood of drinking water as a source of T. S.—natives invariably using it straight from the well or tank, often all owing it to become contaminated, whilst the better cared for European drinks filtered water invariably.

In conclusion, I may state that two intelligent Gunners of Royal Horse Artillery assured me that, when the battery to which they were attached (B-F) marched from Meerut to Peshawur, it was a matter well known and discussed amongst the men, that whereas not a single case existed amongst them in Meerut, there were from 15 to 20 acknowledged cases within three months after their arrival in Peshawur. Four dogs have been fed with the diseased meat raw, and cooked, for two months, *without result*; but independently of the influence of the short carnivorous alimentary canal and powerful digestive secretions of dogs, the German theory of alternation of generation would seem to apply here, rendering a special nidus necessary for the maturation of the grub, viz., the human intestine.

There is a very close similarity between the head of the *cysticercus cellulosus* and that of the flat hookless head of the *taenia mediocanellata* (compare sketch enclosed). drawn under the camera lucida with cut shown on page 820 of 3rd edition of Aitken's Practice of Physic. In many of the specimens examined, I have observed a decided tendency to transverse markings, as if there were the rudiments of segmentation.

I have no doubt that the parasite contained in the cyst is the first stage of development of the *taenia mediocanellata*.

As to the effects of cooking on the vitality of the cyst *cellulosus*, it is difficult to form any decided opinion, as

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from the very low organization of the parasite, it is probably merely a question of the degree of destruction of certain very simple tissues effected by the action of heat. When cooked in a test tube surrounded by its cyst only, the latter collapses, and the grub is so altered in shape and texture as to almost prove its destruction, but when the sack is extracted from a point well surrounded by underdone muscular tissues, there is little apparent alteration of texture.

From Assistant Surgeon 1-6th Regiment, to the Deputy Inspector General of Hospitals, British Troops, Rawul Pindie, —Dated Rawul Pindie, 26th February 1870.

With respect to the existence of tapeworm disease in the 6th Regiment, the accompanying return shows that 37 cases have been known to have occurred since the arrival of the regiment in January 1868; 8 of the cases among the women, and 5 among the children, the youngest of whom was only one year, 9 months old. That the disease is caused mostly, if not entirely, by the meat ration, is the general belief, and disbelief appears to rest on very good grounds.

Very few of the cattle are entirely free from cyst infection, and many of the carcasses are so bad as to be unfit in a great measure for food.

The large old animals are most infected, while the younger, namely those under four years, are comparatively exempt.

The buttocks and shoulders are the usual seats of the cysts.

With respect to the subject of the cysts being killed by cooking, I believe that exposing the meat to a great heat for a considerable time, kills the cysts. Some meat was boiled for an hour and a half, and the cysts in it appeared to be altered in texture and consistency, and very probably dead.

Another piece of meat cut in the form of steak, was given to a native cook to be cooked in the usual way. The cysts in it did not appear dead.

I believe that if meat be exposed to a high temperature in an oven, or boiled for an hour and a half, that the cysts would be killed.

On the other hand, I do not think they are likely to be killed by the usual hasty native method of cooking.

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If the cattle were all bought under 4 years of age, I think there would be fewer joints found cyst-infected, and the meat would be equally good for food.

From the Officiating Commissary General, to the Secretary to the Government of India, Military Department; dated Fort William, 21st October 1868, No. 4469.

With reference to Military Department docket No. 810, dated 29th May, and memorandum No. 385 of 11th September 1868, I have the honor to forward abstracts of reports received from Executive Commissariat Officers named in the margin, and copy of a letter from Staff Assistant Surgeon Alexander Neill at Mooltan.

It will be perceived from the above reports, that in no instance has cyst been discovered in live cattle, or the symptoms in them indicated by Dr. Ross, Surgeon to His Excellency the Commander-in-Chief, except at Peshawur, as stated by the Non-Commissioned Officer in charge of the slaughter-house; but the remark of Major Biggs, now at Peshawur, on the Serjeant's report, confirms the fact mentioned by the other Executive Officers, of its being "impossible to discover cyst infection in cattle previous to slaughter."

Abstracts of reports regarding cyst infection in slaughter cattle.

Jullundur.—No appearance of cyst has been found at the root of the tongues of any of the cattle. A medical officer was asked for assistance in making search for the cysts, but he also found none.

Rawul Pindie.—It is utterly impossible to discriminate before slaughter from any outward symptoms, cattle that are cyst infected.

Every endeavour has been made to discover by close and careful scrutiny before slaughter the cyst infected cattle, but the result has been in no way satisfactory.

Sealkote.—All endeavours to discover any symptoms of the infection by examination of their tongues, while the animals were living, have been unsuccessful.

Mooltan.—The mouth and tongue of a large number of

living cattle have been examined before slaughter, but in no single instance has the infection been so detected.

Dr. Ross' plan of examining the tongues of all animals at time of purchase is not feasible, as they are usually very wild and frightened, and often dangerous to approach.

Peshawur.—In probably 99 cases out of 100, it is utterly impossible to discover cyst infection in cattle previous to slaughter by examination of their tongues. In only one instance has it been so discovered, and that was from the animal's having a number of small lumps over the body which were also apparent on the back part of the tongue. When the tongue is infected, the cyst lies so far at the very root of it, that it cannot be seen in the live animal.

Sergeant. W. Smith, in charge slaughter-house, Peshawur.—Only two tongues have been found infected, one to-day, and one about the end of April. The order has been in operation since the 16th April last. Both cases were of a very slight nature; in to-day's only one cyst was found, and after the tongue was cut out. No more have been found of the sort Major Lowe reported on, viz., resembling clusters of grapes.

Copy of a letter, dated 30th June 1868, from DR. ALEXANDER NEILL, Staff Assistant Surgeon, Royal Artillery Hospital, Mooltan, to the Executive Commissariat Officer, Mooltan.

In reply to your letter of this day's date, in which you ask for my opinion, framed on our joint observations regarding the subject of the discovery of cysts under tongue in what are termed "cyst infected cattle," I have the honor to inform you that my opinion is framed on the supposition that such cysts under tongue are to be found. I have carefully examined the mouth and tongue of a large number of living cattle, and of those slaughtered for issue as rations, and in no single instance did I find such cysts.

These cattle were healthy.

In a case that died, and in which cysts existed, I could discover nothing abnormal in or under the tongue.

If such "cysts" exist, or if such enlargement of the sublingual glands are found, I argue that they are not a diagnostic sign of what is termed "cyst infection" or more correctly "cysticercus bonis," for in the recent outbreak of cattle disease in England, one most prominent symptom of

that disease was bunch of grape-like swelling under tongue, which in advanced cases suppurated, and to a casual observer would have been called cysts or "bags of matter."

If such swellings are found in a bullock that is sick, it is merely symptomatic of an inflammatory condition of the whole mucous surface of intestinal canal, and not of any localised disease, such as cysticercus; the above mentioned swellings being merely inflamed sublingual glands.

In the pig, the diagnostic sign of swellings of the glands or "cyst" under tongue is not found in "cysticercus," and the disease called "measles" is not "cysticercus," but a mere superficial inflammation of the skin and a symptom of fever. "Cysticercus cellulosus" as its name shows, infects the cellular tissue only of the pig, and cannot be discovered in life by any abnormal condition of skin.

In "measles" these swellings are found, because intestinal mucous membrane sympathises with eruption on the skin, and are then merely inflamed glands, not cysts.

The larvæ of *tœnia mediocanellata* will only come to maturity in the mucous membrane, not in cellular tissue of horned cattle.

From the Inspector General of Hospitals, and Principal Medical Officer, British Troops, to the Secretary to the Government of India, Military Department; dated Calcutta, 18th January 1869, No. 32.

I have the honor to acknowledge the receipt of your letter, No. 1320, under date 31st December 1868, with enclosures, (returned) and in reply to state that the important subject to which it refers has engaged my serious attention for some time past, and that, during my recent visit to the Punjab on inspection duty, I took the opportunity of personally inspecting, at several slaughter-houses, the carcasses of bullocks as they were being slaughtered and cut up prior to their issue as rations; as well as to collect, from every available source, all the information I could pick up during my passage through that section of the country. I have, moreover, carefully perused the documents forwarded along with your communication, and now take the liberty of submitting to you the conclusions at which I have arrived.

1st.—That the cyst found in our horned cattle is the *cysticercus mediocanellata*, or immature *tœnia*, whose charac-

teristics have been carefully studied of late, and are now pretty well understood.

2nd.—That this germ is completely destroyed by the agency of heat pushed to the point required for perfect roasting or baking.

3rd.—That the cyst has probably been long present in our ration beef, being well known to native butchers and graziers under the name of "Jowa"—and will, if sedulously searched for, probably be found in rearing grounds other than those of the Punjab, and possibly in mutton as well as beef.

4th.—That needless alarm has been occasioned by ignorantly confounding this parasite with the trichina spiralis of measly pork, from which it is quite distinct.

5th.—That, so far as the records of this department go, no bad effects have been traced to it, before or since its discovery in 1866; nothing approaching to "sturdy" in the living body, and no pathological appearances in the dead.

6th.—That the worst effect that it is capable of producing is tape-worm—an inconvenience rather than a disease, and a trifling cause of inefficiency in this army.

7th.—Admitting the fact of the comparative prevalence of tape-worm among the troops who serve in the Punjab, and the presumption which is strong in favor of the disease being caused by the troops eating encysted beef in an imperfectly cooked state, yet it must not be forgotten that water, vegetables and fruit, are as capable of being the vehicles of the introduction of the "proglottis" as beef, inasmuch as it may then be presumed to be in a *live* state.

8th.—That a large European community in the Punjab is known to consume, with impunity, the very same beef; often the identical carcasses (if I am not misinformed) rejected as unfit for troops.

9th.—For these reasons, I am perfectly satisfied that encysted beef—as it is found in this country—may be safely tendered and consumed as rations; and I am prepared to take the whole responsibility of this step upon myself, on the simple condition that such beef be *thoroughly* cooked.

10th.—In the present state of public feeling, however, I think that it is expedient that those parts of the animal only which are free from cysts (and this the Commissary

General reports would at once be a great saving, and remove the embarrassment he is at present suffering from, in the matter of supply) should be issued: those in which a few isolated cysts exist, and in the rarer instances (so far as my observation goes) in which they are more generally disseminated throughout the carcass, being *for the present* rejected and *burned*—(burying is not sufficient for reasons which it is not necessary to go into here; and that the inspection of the meat before issue should continue under medical supervision.

In a short time, I predict that the apprehensions which have been needlessly caused by faulty observations and more faulty inferences, will have died out; and cysted beef will be as unsuspectingly and harmlessly consumed by our troops as cysted ham is, every morning at our own breakfast tables.

ON POTABLE WATERS.

THERE is no such thing as pure water in nature. From the instant the rain-drop begins to be formed in the cloud till it reaches its ordinary destination, the sea, it is constantly taking up foreign matter. The further it has proceeded on its journey the greater its impurity. This impurity is usually classed under two headings:—(1) suspended matters, and (2) dissolved matters. The former may be subdivided into those whose particles are visible to the eye or microscope, and those whose particles are less than the fifty-thousandth part of an inch in diameter. The existence of these minute objects has been only recently shown by the experiments of Professor Tyndall and others. All waters contain a dense cloud of them, and so does all air. Perfectly pure air is invisible under all circumstances. Ordinary air appears to be invisible, but darken a room, and let a sunbeam pass into it by a small opening, and the passage of the ray is indicated by the illuminated dust floating in its course. When the ray of light is very intense, as in the case of that derived from the electric light concentrated by means of lenses, the air from the highest Alps is seen to be loaded with fine dust. In the same way Tyndall showed that all waters teem with ultra-microscopic dust. The actual quantity of matter necessary to produce the "cloudy" appearance in water is not necessarily great. Sir John Herschell calculated that the mass of matter in the tail of a comet, 100,000,000 of miles in length and 50,000 miles in diameter, might be carted away at once by a single dray horse. So Tyndall, having showed by some beautiful experi-

ments that the blueness of our sky is due to the presence of small particles suspended in the air, estimated that this matter, if gathered up from the whole of the air above the level of Mont Blanc, might be packed into a portmanteau. If there was no such sky matter, stellar space, instead of being a beautiful blue as seen best from the top of a lofty mountain, would be perfectly black.

The nearest approach to a natural pure water as regards suspended particles is that of wells in chalk formations. The track of a concentrated ray passed through such water is visible, "but it is not the thick muddy track revealed in London waters." The best filters make very little impression on it.

Seeing the impossibility of getting water entirely free from this kind of impurity, it seems needless to dwell on it. It is well to keep it in mind, however, as there is some reason to think that the matter involved in the spread of contagious disease exists, in certain stages at least, in this finely divided form. An analyst might report a water containing plenty of it as exceedingly good, and free or almost free from organic matter. It does not do, therefore, to assume in all cases that a water must be safe for drinking because pure to all ordinary tests.

This mode of testing water, by means of the concentrated ray of light, is in some respects then the most delicate of all. We know that the air is loaded with finely divided particles, the greater number of which are organic. Distilled water exposed to air rapidly absorbs these particles. If some of them form the matter of contagion, it also will be absorbed. The danger arising from this cause is well appreciated in large hospitals.

The suspended matters which are visible to the eye or microscope can, generally speaking, be removed by the better class of filters. They include organic and inorganic matters, and the former may be either

living or dead, animal or vegetable. If dead, too, they may be fresh or decomposing. Of these varieties of suspended matters the most important, because most serious as an impurity, are the decomposing animal matters. Next in importance are the decomposing vegetable matter and perhaps some of the varieties of living matter. There can be no doubt that some of them, in drinking waters, cause serious digestive disorders, including diarrhœas, dysentery, and bad forms of dyspepsia.

Generally speaking, we can tell when a water contains an unsafe quantity of these suspended matters. It is their quality, however, that may constitute their chief danger, and this we cannot always determine.

The substances dissolved in water are those to which most attention has hitherto been paid. They are divisible into gaseous and non-gaseous, and the latter include organic and inorganic compounds. All these are not to be regarded as impurities. A water containing no gas would be decidedly unpleasant and perhaps unwholesome to drink. It is a question too whether a water is not all the better for containing a small amount of some salts in solution, and there can be no doubt that a good drinking water may contain a considerable quantity of salts. A good water, freely exposed to the air, should contain about $2\frac{1}{2}$ volumes of air dissolved in every 100 of water. Of this dissolved air about one-third should consist of oxygen and two-thirds of nitrogen. Carbonic acid gas should not exceed about three per cent of the mixture. It is not a good sign when the proportion of Oxygen is small, as it indicates that there has been oxidizable matter present, usually decomposing organic. Thus the late Professor Miller having examined the Thames in various parts of its course through London, found the quantity

of Oxygen to diminish steadily till it reached Woolwich, where it began to increase again.

The presence of a trace of sulphuretted hydrogen is sufficient to condemn any water. The reason is, that this gas passes rapidly into the air from any exposed water. Hence, if any is found in it at any time, it is a sign either that organic matter containing Sulphur must be rapidly decomposing, or else sulphates and decomposing organic matter of some sort are present, the latter converting the former into sulphides from which H_2S is liberated by any free acid.

Ammonia may be considered as one of the gaseous impurities. Its presence ordinarily indicates the pre-existence of animal matter: and generally "the salts of ammonia are in reality just as much organic matter as many of the more complex and less definite substances which yield the so-called Albumenoid Ammonia."*

Of the non-gaseous dissolved matters, the organic are by far the most important from a sanitary point of view. The less a water contains of these the better, but some forms are far more serious than others. Thus Dr. Macnamara writes, "I think a water may contain 5-6 grains organic (volatile) matter per gallon and yet be innocuous, while one containing 6 grains of some organic matter may be most dangerous. The East London water which spread cholera contained only 9 grains per gallon. Professor Frankland thinks 1 part cholera rice water to 1,000 of drinking water would not materially affect its chemical properties." In deciding therefore, whether a water is fit for drinking or not, it is not enough to test it chemically. We must carefully ascertain whether it has been exposed to contagion.

The principal inorganic dissolved compounds in

* Dr. Macnamara: 8th Water Report.

water are chlorine, nitrous acid, nitric acid, sulphuric acid, and phosphoric acid, combined with potassium, sodium, calcium, and magnesium : also some others as iron and silica, whose modes of combination are not so well understood.

In considering the question whether any water is or is not fit for drinking, there is much to be noted before beginning an analysis. We should find out its immediate source, whether well, tank or river, and its ultimate source, the spring, gathering ground, or distant hill range. Geology has therefore to be brought to our aid in determining the nature of the rocks through or over which the water may have passed. The surface soil has to be studied with reference to its constitution and vegetation. The climatology of the District must be known, including especially the average rain fall, the number of days on which rain does fall, and the prevalence of high wind. The construction of channels, tanks, wells &c., must be inspected. Every influence in fact that has acted on the water in any way from the time it fell from the clouds to the moment when it is taken into the laboratory, must be studied from all points of view.

We propose in a future article to consider the best methods of examining drinking waters, and what has been done in India in this way.

MARCHING ORDERS.

It is just about twenty years ago since Sir Henry Pottinger turned the first sod of the Madras Railway. In the two decades which have elapsed, Southern India has had the South-West line of that Railway completed, so as to bring its opposite coasts into close and rapid communication. The North-West line has established a connection with the Great Indian Peninsula Railway and Bombay.

And the Bangalore and Bellary branches have made those large Military stations easily and quickly accessible. The Great Southern of India Railway also, by its line from Negapatam through Tanjore and Trichinopoly to Erode, has still further facilitated the speedy transport of travellers and troops through a considerable part of the Madras Presidency.

We recall the time when such a system of railways was looked forward to in military circles with longing expectation, in the hope that regiments would then be moved from station to station, without all the difficulties and dangers and deaths that invariably attended the protracted marches of corps year after year. Accordingly, Government has largely availed itself of the various Railway lines in all the Presidencies, in carrying out the annual reliefs of regiments, and this to the saving of much money, much trouble, and many lives. With the bitter experience of the far past to warn, and the better experience of the recent past to encourage us, we are consequently not a little surprised and alarmed to learn that the expense, entailed on the State by the transport of troops by rail, is so great as to lead our military-authorities to revert to the old practice of marching them on foot between stations several hundreds of miles apart. We are unaware what action the Inspectors General of the Indian Medical Department and Sanitary Commissioners have taken upon this subject. We take it for granted, however, that they have all moved in the matter. As Medical officers they cannot thus soon have forgotten the frightful mortality, which so frequently decimated camps of moving corps in years gone-by. The fatal marches of the 15th Regiment from Bangalore in 1850, and of the 4th Regiment from Madras in 1864, to Secunderabad, have been indelibly impressed on our memory, and we shrink from incurring the

risk of such marches again. But it is a risk from which "the powers that be" do not fear to shrink at all. We have recently touched on the line of march of a Battery of Artillery, and believe that one or more Native regiments have been ordered to proceed on foot to the stations to which they stand removed, although weeks of exposure must be passed in weary journeys, which use of the rail would reduce to but a few days.

At this time, when a wave of epidemic cholera seems travelling southwards, it is especially dangerous to send regiments marching through the country. The fatigue, the overcrowding in small tents, and the inadequate, as also often injurious, food, which are invariable accompaniments of marching corps, and especially native corps,—all predispose to outbreaks of epidemic diseases, the potential poisons of which may pervade the atmosphere. And the longer the march the greater the risk. Travelling day after day from ten to fifteen miles,—living too often on a scanty supply of food, and that food in great measure indigestible,—and sleeping in tents all too circumscribed for their inmates, soldiers come to have their blood, as was long ago shewn by Dr. W. B. Carpenter, surcharged with effete materials, and it is therefore prepared for the reception and multiplication of any Zymotic virus. Let such poison, whether of cholera or small-pox, enter the vital fluid, and disease, fatal as well as formidable, must be the inevitable result. An order for a long march when cholera is abroad, is equivalent to the death-warrant of a considerable number of human beings. Grave, therefore, is the responsibility of those who, for the sake of saving some few hundreds of railway fares, would subject a regiment to the decimation of its ranks!

But is the proposed retrogression really an economical step? We trow not. The loss of so

many lives is in itself an extravagance, and the immediate saving of a few Rupees is, in the long run, counterbalanced by even the pecuniary loss to the State, accruing from the destruction of so much life.

We have heard it stated that, if our troops be not accustomed to marching, they will prove themselves unequal to hardship in time of war. We are unprepared to grant the truth or soundness of the statement. And what does it amount to? Simply that, in these piping times of peace, it is worth while to sacrifice hundreds of lives, in order that, when war comes, we may enter upon it with as many hundreds less, available for its emergencies.

It is also urged that the sight of our armaments and munitions of war serves to inspire the population of the country with respect and fear. "A Battery of Artillery or an European Regiment marching through different districts must awe the disaffected, and give all who see them a high idea of our power." True, but is a march necessary for the production of these results? Will they not equally accrue from sending our troops and batteries by rail, on which they must pass through whole provinces with great rapidity, and in this very rapidity of transit impress the people with our great power. And besides, the view of a regiment attacked with cholera on a march, and of its men dying off like rotten sheep, is much better calculated to betray our weakness than discover our strength.

We hope these remarks, suggested by both Science and experience, may encourage re-consideration and rescindment of the order which is our present text, before we again learn by bitter experience the danger and the cruelty of sending large bodies of men on foot through hundreds of miles of country.

THE NEW ARMY FUND.

WE congratulate our Indian Army on the institution of a Widows' and Orphans' Fund for all its Departments. The allowances from this Fund are provided, in *addition* to the pensions and compassionate allowances, granted by Royal Warrant to the widows and families of British Military officers. The latter, however, are paid from Indian revenues, but these revenues are not to be burdened with any further expenditure for the former. Government simply collect the contributions of officers, allowing them interest and exchange for their money, according to the market-rates of the day. Each subscriber's widow and children will only get what he paid for,—nothing more and nothing less. There is no bargain obtained by him,—nor by Government.

We doubt not that all in the Service will gladly avail themselves of the provisions of this Fund. The advantages it offers to them are considerable beyond all question; and managed, as the institution will be, by responsible officers of the State, those advantages are as secure as they can well be made. In undertaking to conduct the affairs of the Fund, and assure the benefits which it proposes, Government confers no small boon upon its Military Service. Without this addition to the pensions of widows and orphans, granted by the State, their incomes would be meagre and altogether inadequate to the requirements of their social position. And though this addition is made, not as a gift, but as an equivalent for money lent to Government, it will be all the more valued as something, which has been fairly purchased. Having to pay fully for the advantages offered, will encourage a much-needed frugality in all commissioned grades of the Army, and also lead them to feel their position a

more manly and independent one than if they were recipients of an additional compassionate allowance from the coffers of the State.

It would be invidious, as well as useless, to institute any comparison between this Fund and those Funds whose place it takes. The circumstances under which it is established are altogether different from those under which the latter were instituted. But closure of the old Medical Fund has an important bearing on the pension-scale of the junior ranks of the Indian Medical Department, who find that institution barred against them. In days gone-by, when representations were made by seniors of the department, that the highest pension available to the Medical Service is considerably below that attainable by the highest military ranks, it was urged as an argument against any increase, that the Medical Fund is so liberally subsidised and helped by Government in its Annuity Branch, that the Annuities of the Fund should be regarded as, to a certain extent, conferred by the State. There is now no Annuity Branch to eke out the pensions of retired Medical Officers, who are non-subscribers to the old Medical Fund. We put forth this fact as a *cue* for the rumination of the junior ranks of our Service.

In a future number, we may enter into details regarding the regulations of the new Fund and the benefits it offers. In this issue, we must only further content ourselves with earnestly recommending all the younger members in the Service to subscribe to it without delay, and so secure an adequate provision for their families, who, without it, will be left little better than paupers at their death.

REVIEWS.

"Consumption and the Breath re-breathed." A word with Reviewers. By HENRY MACCORMAC, M.A.

THE author of this pamphlet regards himself as the great discoverer of a great truth. Until Dr. Henry MacCormac published his discovery, the world is supposed to have been in perfect darkness as regards the close and intimate connection between the development of tubercle and an imperfectly aerated blood. He holds that the unoxidized pulmonary excreta become tubercle, and puts forth the "theory that tubercle is the effete carbon of degradation not released and discharged by reason of the habitual respiration of air already breathed." We may safely give the author all credit for originality in the form of words which he has employed to express his views. We are, however, unprepared to go quite so far as he does. That tubercular disease is inevitable *only* when pre-breathed air is breathed again we cannot admit, although we do not deny that the inhalation of air loaded with Carbonic acid is a fertile cause of tubercle. Dr. MacCormac's is the common error of riding a hobby too far and too fast. But we are free to acknowledge that if the world would inhale naught but a pure atmosphere, the amount of tubercular disease would be reduced many-fold; and medical men everywhere can scarcely be too urgent in inculcating the necessity of a pure atmosphere to maintain the body in health.

Report upon the working of the Lock Hospitals in the Madras Presidency.

THIS is a report, furnished by the head of the Indian Medical Department to the Government. It begins with an account of the period when Lock Hospitals were for the first time organized in this part of India. We learn from it that so far back as 1805 the Government considered it to be expedient to establish such institutions. In that year Assistant Surgeon Price represented that at Trichinopoly in H. M.'s 12th Foot venereal diseases were very prevalent, and

on this, Lock Hospitals were sanctioned in all the Military stations in the Presidency. From this time up to the year 1838 these institutions were closed, and again opened on more occasions than one, and in this period of 33 years we find the Bengal Government peremptorily ordering the abolishment of all such institutions, notwithstanding the favorable report made upon these hospitals by the Government of this Presidency, the reason assigned being, that "venereal diseases had diminished in Bengal since their abolition there!"

Only three years elapse from the last date when the subject forces itself very strongly upon the attention of the Government, and now we find that Lock Hospitals in the true sense of the term are not sanctioned, but hospitals in which arrangements were made for the special treatment of prostitutes and persons affected with enthetic diseases. These hospitals are nothing more or less than the Civil Dispensaries which are to be met with throughout the country at the present time. This plan, which was supposed to be devoid of the objections usually urged against the working of Lock Hospitals, was however found not to be so fruitful of good as was anticipated, and once again, therefore, in 1855, the former system is brought into force, and has continued to hold ever since.

In 1871 eleven such hospitals were in operation. The decrease in the number treated at the end of five years is not very marked, although the type of disease is said to be much milder and the secondary forms much more rare. A favorable view is taken by the Inspector General upon the general working of the hospitals; although fault is found with the Police for being wanting in their duties of surveillance, and in the magisterial authorities in not exercising their powers to the fullest in getting the conditions of the Contagious Diseases' Act worked out. The clandestine form of prostitution is that which it is most difficult to detect and correct.

One statement in this report has surprised us not a little. It is so purely original that we cannot overlook it. "There is also an element to be considered bearing on the causes of these diseases of which I have no doubt, though it has not before been noticed in any printed book. It is, that they are decidedly seasonal, the diseases are much more frequent in the cold weather of this country than at any other period of the year." We cannot most certainly find it anywhere in print

that venereal diseases are caused or are influenced by season. Rather we should call them most unseasonal diseases, and certainly most unseasonable to any body suffering from these. Messrs. Hutchinson and Ricord, would, we imagine, open wide their eyes with surprise if they were to peruse the paragraph above quoted. Knowing as we do the pathology of syphilitic and envenomed diseases, we may express a hope that such a statement may never be found in any "printed book," without sufficient evidence adduced in confirmation thereof. The idea may commend itself to the native practitioner, who attributes all diseases to either excessive heat or excessive cold, in or out of the body, but must be discredited by scientific medical men, until supported by an array of facts. The simple expression of our opinion is altogether inadequate to the establishment of a doctrine.

American Journal of Insanity, for July 1872. No. 1.

Published by L. W. SCHMIDT, New York.

THIS number forms the first of the 29th Volume, and is the first which it has been our privilege to see. Like all journals and issues from the American Press, this journal is well got up. The paper is excellent, nothing more can be desired in the quality of the type, and the lithographic plates possess a peculiar softness combined with a sharpness in outline. In some parts we notice some small errors in the division of words, for instance, "*natural*" is divided thus, *nat* and *ural*; *morphia* is thus written *mor*, (with a comma dividing the word) and *phia*, and so on. These are, however, small errors or rather oversights in the editing.

The contents of this number are varied. The first article, embellished with a lithographic print of the Buffalo State Asylum, treats of "State provision for the Insane" afforded for lunatics at Buffalo. A somewhat detailed description is given of the building and its arrangements. This is followed by an interesting case of the excessive hypodermic use of morphia. Three hundred needles were removed from the body of the insane woman. "During life, 286 were removed from various parts of her body; 11 were found in the tissues after death; 3 were passed by the rectum during sickness. Of this number 246 were entire, and 54 were parts of needles." They were distributed as

follows;—in right breast, 150; left breast, 20; abdomen, 60; genitals, 20; thighs and legs, 30; back, 20." The author accounts for their presence by their introduction through the skin "while the patient was under the influence of morphia hypodermically administered, and while suffering from hysteria."

An article on the Physiology and Functions of the Brain, being a translation of an article by M. Claude Bernard, in the March No. of the *Revue des deux Mondes* succeeds. In this we read of nothing novel. The old ground is gone over again—ground with which we are familiar.

A paper on the "Theories of Evolution," by Professor Huxley, takes up a large portion of the space allotted to original articles. This, it would appear, is a reply to Mr. Darwin's many critics on this much-vexed question.

The most important and interesting article in this Journal is, in our opinion, one entitled "Is Insanity a disease of the mind or of the body?" The writer frames his paper upon the opposite views entertained by the two Superintendents of Lunatics' Asylum and the Idiots' Asylum at New York.

The concluding portion of the Journal comprises reviews of books, &c., together with a brief summary of the various treatment found beneficial in mania and allied diseases.

We are much pleased with the get up of this Journal and with the material to be found in it. The Journal is one worthy the notice of those who take an interest in, and whose sphere of labor lies among, those who are mentally deficient or diseased.

MEDICAL MISCELLANY.

On suppression of the Menses, and Menstrual Anomalies considered as diagnostic of Pregnancy. Clinical lecture by Professor DEPAUL.

At the close of my visit, you may have remarked a woman who had come to consult me: she desired to know if she were pregnant. I made her lie down on a bed, and placing my hand upon her abdomen, I at once distinctly felt a round voluminous tumour, reaching almost to the umbilicus; it was soft, depressible, and I had no difficulty in recognising the existence of an enlarged uterus. Some slight distinct shocks against my hand discovered to me the active movements of the foetus. Finally the stethoscope enabled me to detect the pulsations of the foetal heart.

There was not the least doubt of the existence of pregnancy. Its diagnosis was extremely easy, and one might be astonished that this woman entertained any uncertainty about her condition if she did not present a rare and exceptional phenomenon—that of recurrence of the menstrual flow during the five months which had elapsed since conception.

This anomaly is very rarely met with, for the ordinary menstrual flux must not be confounded with those slight hæmorrhages which sometimes occur in a pregnant woman at uncertain periods, and which are due to other causes than the menstrual molimen.

However, authors who have written on Obstetrics have almost all cited analogous facts to that which now engages our attention, not only because the examples are very rare, but also in order to put medical practitioners on their guard against an error in diagnosis which may prove very detrimental to the life of the foetus.

It is thus that Mauriceau relates the history of an unfortunate who was hanged, and who, having been publicly dissected afterwards, was found “four months pregnant, notwithstanding the report of persons who had visited her by order of the Judge before her execution, and who asserted contrary to the truth that she was not *enciente*. What deceived them was that this woman, although pregnant, had effectively menstruated several times.” Mauriceau adds, at the end of this narrative, that he had known several women who in their pregnancies had menstruated regularly to the fifth month.

Churchill mentions a very remarkable case where this function persisted during the whole of pregnancy and lactation too.

Such examples are seen very rarely, but that which is more frequently observed is the appearance of the catamenia during the first menstrual period after fecundation. It is, however, necessary to call your attention to notable differences in the quantity and quality of the blood which flows under such circumstances. M. Dubois, in his lectures, insisted very justly upon this fact that the menstrual discharge occurring during pregnancy presents distinctive characters which do not allow it to be confounded with the ordinary catamenial flux. It is, said he, less abundant, more deeply colored or of a paler tint; it is irregular in its progress, being suspended at night to reappear in the morning, or during the day to reappear in the evening. In some cases it is prolonged in an unaccustomed manner.

It will interest you to learn the results of *fifty-one* cases observed by Dr. Elsasser, of Stuttgart, in which menstruation had continued during pregnancy.

This physician has related that in *eight* cases the menses re-appeared once; in *ten* cases twice; in *twelve* cases three times; in *five* cases four times; in *five* cases six; in *five* other cases eight, and in *two* cases nine times, that is to say during the whole of gestation. *Eighteen* times out of *twenty-six* the flow was less than usual. The duration of pregnancy was normal in *thirty-six* cases; it was interrupted in *fifteen*. Finally in *three-fourths* of the instances cited the infant had required its ordinary development, and of these women *fifteen* were primiparæ, and *thirty-six* multiparæ,—all aged from *twenty* to *thirty* years, except *two* who were respectively *thirty-six* and *forty-one* years of age.

With regard to the connection which exists between menstruation and pregnancy, I cannot refrain from citing to you a certain number of facts of another kind, which equally merit our attention. I allude to cases where the menstrual secretion appears for the first time during pregnancy. Churchill adduces the following observation perfect; “a young woman presented all the symptoms of incipient pregnancy, with the exception of one particular phenomenon—the menses appeared for the first time; she continued to menstruate even to the end, when she gave birth to an infant small but well conditioned.” The same author relates the history of a lady who married for *eight* years, had never menstruated except during her pregnancies; each time that the catamenial flux appeared it was certain that she had become pregnant. Finally, this last observation deduced from a medley, of curious facts equally merits attention: a young woman married at *twenty-one* years of age had till then never menstruated. Her health left nothing to be desired. *Two* years after her marriage she seemed to fall off, and was seized

with vomiting and malaise. The day following the appearance of those symptoms her catamenia appeared, and continued four days. The following month they recurred, and the abdomen perceptibly augmented in volume. The patient believed herself pregnant, although she menstruated regularly every month. At the usual term of pregnancy she was brought to bed of a healthy child and her menses ceased to appear.

Baudelocque relates that he has seen women who have assured him that they never menstruated except during their pregnancies—an assertion which appeared all the more worthy of credit, since they addressed themselves to him with a view of obtaining an explanation of this strange phenomenon.

Davener states that he knew a woman who affirmed that she too never menstruated before her first pregnancy. "Scarcely had she conceived when the menses appeared and recurred at regular periods until her confinement; from the period when the lochia ceased until her second pregnancy, nothing appeared but when she conceived again, the catamenia commenced to flow, and this continued for as long as she produced children, so that she had no stronger proof of pregnancy than the return of her catamenia. Notwithstanding she did very well. The collation of these facts sufficiently proves that menstruation is possible during gestation, whatever variation it may be liable to, whether to recurrence during the first months of pregnancy or to its appearance for the first time after conception. Some authors and Denman particularly have not feared to deny completely the possibility of such a condition. "Suppression of menses," says that author, "is one of the infallible sequences of conception. I have never found a single woman who menstruated during pregnancy."

The observations which I have cited above, and which have been brought forward by serious men, whose scientific honesty no one can doubt, oblige me to be less dogmatic than Denman. At all times I would have you exercise the greatest circumspection on this subject.

In the diagnosis of pregnancy when a woman informs you that her catamenia have recurred every month from the date when she believes she had conceived, say you to yourselves, "this woman is probably not *enciente*," and apply yourselves to enquire most minutely into all the signs which would lead you to discovery of the truth; neglect neither the age nor the pathological antecedents, nor the social conditions of your patient. When a woman has passed thirty-five years of age and approaches that epoch of life in which reproductive power is generally suspended, above all if she has not had children, but has a strong desire for them, the over-excited nervous system will occasion in her bodily economy deceptive disturbances, nausea, vomiting, and apparent tumefaction of the abdomen, and even movements in

that region which might be mistaken for those of a foetus, and which are in reality intermittent and rapid contractions of the abdominal muscles or movements of the intestinal sacculæ; but if you push your interrogatories a little further, you will learn that the catamenia run naturally and regularly and that the belly is only distended with fat or intestinal gases.

At other times she may have a malady like that of which M. Dubois has spoken in one of his prelections; "a woman, said he, consulted me some time ago; she had a tumour in her belly, and the medical practitioner whom she had been to see at the commencement of her disorder, believed that she had entered upon the pregnant condition, notwithstanding her persistence of the menstrual flux. When I examined her, she had had the tumour two years, the menses had never ceased to be regular, and I found no difficulty in recognising an ovarian cyst."

Finally certain women still young but of a nervous temperament, leading an irregular life, may present all the presumptive signs of pregnancy, under the imaginary influence of fear that they had fallen into that condition. So long, however, as the menses continue, more or less abundant, more or less colored, it will be easy for you by attentive examination, to detect the truth and reassure the patient regarding her actual state.

In one word, I cannot too much insist on that law so well expressed in the Obstetric Treatise of Messrs. Dubois and Pajot—menstruation disappears when a woman is pregnant; but I must add, like those authors, "women whose menses recur during pregnancy, equal in quality and regularity to their flow than the non-pregnant state, are exceptions extremely rare."—*Journal des Connaissances Médicales*.

DR. FORDYCE BARKER, on *Puerperal Thrombosis and Embolism*, read at New York Academy of Medicine.

THE paper commenced with the history of a case which occurred in his service in Bellevue Hospital. The patient, a German woman, was brought into the hospital by the police and found to be in labor. The labor terminated rapidly (after the bladder had been emptied by the use of the catheter) in the birth of a still-born child. She had no hæmorrhage at the time of delivery and the uterus contracted finely. Eleven hours after, she had a severe secondary hæmorrhage, which was arrested by the use of ice, pressure on the uterus, and ergot. Nine hours after the hæmorrhage, she had convulsions, four paroxysms, with but short intervals between each. Repeated examinations failed to detect albumen or casts in the urine. For the following fourteen days, she did well in every respect. The fifteenth day after

labor she complained of severe pain in the abdomen, which was tympanitic and sensitive to pressure, and also pain in the left thigh. The abdominal pain and tenderness subsided after the action of a cathartic; but the pain in the left leg continued the next day, with inability to move the leg. It was found by measurement to be larger than the other above the knee, but not below it. She had no phlegmasia dolens, and the pain and difficulty in moving the leg continued but five days. On the eighth day after the attack of these symptoms, she was suddenly attacked while walking in the ward, with very severe dyspnoea. Her surface rapidly became cold, her countenance expressed great anguish, and the pulse was very small and feeble. After the use of ammonia and whisky she rallied. But the next day her pulse was 132, her respiration 32. She was strictly enjoined to remain in bed, and the bladder was emptied by the catheter. The urine now for the first time was found to be highly albuminous, nearly one half becoming solidified on applying heat and nitric acid. On the third day after, contrary to orders, she rose from her bed to go to the water closet, when she fell on the floor, and died in a few moments apparently asphyxiated. The autopsy revealed dark coagula in the right auricle and ventricle, fibrinous and slightly adherent coagula in the pulmonary arteries. Both kidneys were highly congested. The vena cava contained a fibrinous clot which obstructed both renal veins. The left femoral vein contained a pale, firm coagulum more strongly adherent to the coats of the vessel than that in the vena cava.

Although many of the older writers had noticed these coagulations and theorized as to their causes and pathological significance, and Van Swieten, more than one hundred and twenty-five years ago, had demonstrated by repeated experiments that if coagulation takes place in the veins and the clots are carried to the heart, "the animals suffer great anguish in breathing and rapidly die;" yet these facts received but little attention from the medical world, until Virchow, of Berlin, made his great pathological discovery relative to thrombosis and embolism. Our late distinguished countryman Meigs, was one of the earliest to report a case of death from this cause, the significance of which he appreciated; but his theory in regard to the lining membrane of the vein, the endangium of which he regarded as the blood-making tissue, prevented him from really making the pathological discovery which he so nearly approached.

As the terms thrombosis and embolism have been used somewhat loosely, the author of the paper defined them as follows: thrombosis meaning the arrest of the circulation by coagulation in the veins, the arteries, or the lymphatics. The Greek word embolus means, something inserted like a wedge, something blocking up. Embolism therefore implies that the circulation

has been blocked up by something transported from some other point; and the nucleus of the blocking agent may be a fragment of a clot; an exorescence from the aortic valves, a pus-globule carried in the circulation until it enters a vessel of too small a calibre to allow it to pass on. So there may be arterial, venous, or capillary embolism, each of which has an important pathological result. It is obvious, that if the embolus is in a vein it is always carried toward the heart; if in an artery, it is carried in a direction from the heart.

To the late Sir James Y. Simpson belongs the merit of first describing arterial thrombosis as a lesion of the puerperal state. Since the publication of this essay, quite a number of cases have been reported, but it is undoubtedly a very rare affection.

The symptoms of arterial thrombosis are, absence of arterial pulsation below the thrombus—sometimes increased force of pulsation above the thrombus—pain, sometimes very severe, below the seat of the thrombus,—coldness of the limb—temporary paralysis of the limb. The cause of arterial thrombosis is no doubt in a large majority of cases an embolus, whose original seat was the heart. In most cases, where this has occurred in the puerperal woman, the patient was known to have previously had rheumatism or endocarditis. But in some cases it seems that the embolus is a clot which has originally formed in the left side of the heart, for the symptoms of cardiac distress have preceded the signs of local obstruction, while the valves of the heart have been free from disease.

The hæmatologists, Andral and Gavanet, Becquerel and Rodier, have shown that in pregnancy as well as in various diseases, as cancer, tuberculosis, typhus fever, etc., there is a peculiar modification of the proportion of the normal elements of the blood, which consists in an excess of the amount of fibrin and serum, and a deficiency of the blood corpuscles, and this condition has been termed hyperinosis. There results from this modification, a special tendency to coagulation, termed by Vogel, inopexia.

Barnes, Huvienx, and the author of the paper believe that puerperal toxæmia may rapidly develop inopexia independent of hyperinosis.

Thrombosis or embolism of the pulmonary arteries is a very grave and not a very rare affection of the puerperal period. The thrombosis is sometimes spontaneous or primary; in other cases it is the result of an embolus, the embolus being a clot from a thrombus in the veins. This is no doubt the cause of sudden or rapid deaths, which follow phlegmasia dolens, and sometimes occur in typhus fever, rheumatism, phthisis, etc.

The symptoms of this lesion are great difficulty and anguish in breathing, quick, rapid, feeble pulse, coldness of surface, convulsive contractions of the muscles of the chest, and, in short, the patient dies from asphyxia.

Cases were detailed, one a patient of Dr. I. E. Taylor, another a patient of Dr. Chas. A. Budd, where death took place suddenly when the patients were apparently convalescent from phlegmasia dolens. A patient of Dr. Cheeseman, who had previously symptoms of venous thrombosis in the left leg, but did not have phlegmasia dolens, suddenly was seized with symptoms of asphyxia and other signs of embolism of the pulmonary artery. This was followed by evidences of pulmonary infarctions, as pain in the chest, cough, bloody sputa, etc. Her death occurred in a fourth attack.

It is probable that many cases of this character recover by the fragmentation and absorption of the clot.

It was formerly believed that venous thrombosis was generally the result of phlebitis; but the pathological researches of Virchow, Charcot, and others, seem to have conclusively demonstrated that thrombosis is infinitely more frequently the cause of phlebitis than the consequence of it.

In the treatment of this affection, the paper urged the importance of not hastily giving up the case, the use of carbonate of ammonia and other stimulants, the importance of opiates, equally necessary as in other shocks, and, above all, such conduct and manner on the parts of the medical attendant as will inspire hope and confidence, and keep up the morale of the patient.

The paper referred to the relation of venous thrombus to the infarctions, uterine, renal and pulmonary, and also its bearing on pyæmia, all of which is of great interest in connection with general pathology equally with the special pathology of the puerperal period.—*The Medical Record*.

Therapeutics of Diabetes Mellitus.

PROF. BALTHAZAR FOSTER, of Birmingham, has made another valuable contribution to this subject in the new number of the *Brit. and For. Med. Chir. Review*. He relates eleven carefully recorded cases and we proceed to state the conclusions to which he thinks they point. The cases were selected from a number in which the learned Professor made observations to determine the effect of remedies in controlling the excretion of sugar in diabetes mellitus. An inquiry of this kind is very laborious, and often productive of results quite incommensurate with the labour expended. The results, however, if accurately obtained, are not valueless, even when they add little or nothing to our curative power over the disease, for they increase our stock of knowledge, and they often indicate both the directions to be avoided and those to be followed in future research. Diabetes, unfortunately, is not the only pathological state for which we want to know what treatment is worthless, and what is valuable

Dr. Foster says that to estimate the effects of any remedy on the sugar-excretion in diabetes, we should determine the amount of sugar lost under ordinary mixed diet, and under restricted diet, containing little or no saccharine or farinaceous elements. When these two amounts are known, he thinks we are in a position to estimate the effect of treatment by drugs, and while in most of the cases now recorded this has been done, while in the few in which it could not be accomplished the results are trustworthy. Instead of giving daily records of the quantity and quality of the urinary secretion, Dr. Foster records the results in the form of the average daily excretion for the period of each kind of treatment. This method, adopted partly for the sake of brevity, is open to some objections, the chief of which is that it represents the effect of treatment in a much less striking way than a daily record which shows the progressive diminution of sugar and urine. Daily analyses of the urine were made in nearly every case, and in the exceptions they were made three or four times weekly. In all cases the urine of twenty-four hours was measured into a single vessel, and the specimen taken thence was examined for its specific gravity and sugar contents.

We give in Dr. Balthazar Foster's own words the conclusions which the study of the cases seems to him to justify:—

"The peroxide of hydrogen was given in two cases. It had little or no influence in diminishing the sugar excretion. In the one case in which the sugar and water fell, the skin acted most copiously, and the perspiration contained a large quantity of sugar. The improvement in the state of the urine was, no doubt, due to this second channel of elimination. In other cases, not here recorded, the remedy has failed me.

The liquid extract of ergot was given in four cases, one of which was complicated by extensive lung and kidney mischief. The ergot was given on the hypothesis that it might lessen the congestion of the abdominal viscera. The effects observed to follow the use of ergot were—1, decrease in the quantity of urinary water; 2, slight decrease in the quantity of sugar; 3, slight fall in the specific gravity of the urine. The decrease in urinary water I have also observed in cases of diabetes insipidus, as well as in other cases of true diabetes.

The potash salts were given in succession to the same patient. The results show that they have no power of diminishing the quantity of urine or the amount of sugar. In other cases I have obtained similar results with alkalis, and have never observed any beneficial effects from their use in diabetes. It is worthy of note that in neither case was the acid reaction of the urine neutralised, although the urine is twice noted as being only faintly acid.

Opium was given to the same patient after the potash salts. The quantity of water fell, the specific gravity remained very

stationary, and the quantity of sugar was lessened. The patient, however, improved manifestly out of proportion to the diminution of the sugar, an improvement which I have noticed in other cases under opium, when the sugar diminution has not been great, and which I am inclined to attribute to the influence of the opium in lessening the urea excreted. In the case here recorded the urea fell in the course of ten days nearly 120 grains. The opium in this case did not act nearly as well as it does in some cases.

Bromide of potassium in combination with *Tr. Ferri Perchloridi* was given in two cases. This combination I have found much more useful in diabetes than the bromide alone; I have, however, only found it beneficial in mild cases. In such cases it seems to have some slight influence in diminishing the amount of water and checking the craving after food. This latter is its chief recommendation.

Lactic acid was given in four of the cases, and in one case combined with skimmed milk. In three of the cases the lactic acid was given in small doses, not exceeding two drachms a day. In two of these, rheumatic symptoms were produced, the quantity of urine fell, the specific gravity was not much affected, the sugar was diminished in quantity and the patients improved. In one case the sugar was not estimated, but the quantity of urine was lessened, and the specific gravity fell slightly, while no rheumatic symptoms appeared. In one of the cases the lactic acid was given in much larger doses to the extent of 3 oz. daily. In this case no rheumatic symptoms whatever were produced. The urinary water was diminished, the specific gravity was scarcely affected, and the sugar fell slightly, rising again when the acid was discontinued. In all these cases but one the functions of the skin were restored by the lactic acid. In this way the decrease of water may be wholly or partly explained. Thirst was not diminished particularly, and the appetite was, if anything, increased.

The use of lactic acid in cases dieted on skim milk is illustrated by one case. In mild forms of diabetes this treatment has often succeeded in my hands. Its chief recommendation is its greater ease of application than restriction to purely non-amylaceous food."

In the November issue of the *Canada Lancet* just to hand we find the second of two cases of diabetes treated by lactic acid and with an exclusively flesh diet written by A. Hamilton, M. A. M. B. It will perhaps interest our readers to compare the comments of our Canadian confrères with what has preceded. Dr. Hamilton says:—

"I infer that the administration of lactic acid to the amount of three or four drachms per day, has some decided power over the disease. It will diminish the secretion of urine, lessen the

amount of sugar at the same time and along with it the specific gravity. Also the symptoms immediately dependent upon the march of the disease were all ameliorated. Beyond this remarkable power over diabetes it is doubtful in my mind if it has reliable curative power. If the reader will examine Cantani's treatment he will see that it is predicated upon rational principles. It is to be hoped that further investigation, rationally and not empirically conducted will lead to better results in this hitherto unmanageable disease. I may say that I do not think so highly of the treatment as to have placed a third case which has since occurred in my practice upon it. Both qualities of acid were used, the syrupy in consistence and that of watery consistence. Its expense, about \$5 per pound wholesale, is a bar to very prolonged trial of it.

I may add that the pains produced by the acid apparently in the first did not occur with the second. They did not occur in the first case either with the acid of Montreal. On one occasion only was the pain in the first case described as being in the knee-joints for a day. I observed nothing analogous to the phenomena of acute arthritic rheumatism which other observers have noticed."—*The Doctor*.

*The Relation of Cataract, Stricture of the Urethra, and Enlarged Prostate Gland** By JABEZ HOGG, Surgeon to the Royal Westminster Ophthalmic Hospital, &c.

THE known remote and predisposing causes of cataract are already numerous; it may be, however, that there are other causes which escaped notice or attention. In certain parts of this country, as well as on the continent, it is thought, from the quality or contamination of the potable water, more than other causes, stone prevails to a very grave extent. It is also asserted that in countries where wines and spirituous liquors are cheap enough to become the common beverage of all classes, cataract more frequently occurs. Whether this is so I am not able positively to say, but it is a matter of certainty that lenticular opacities are very often and intimately associated with diseases which have their origin in a remote part of the body. Kidney affections are a frequent source of danger to the organ of vision, but stricture of the urethra has not hitherto been noticed as a predisposing cause of cataract. Men, it is said, have a less power of assimilating uric acid than women; but without entering into any physiological speculation, it might have been suspected in certain cases, when from a lengthened retention of a small por-

* Read before the Medical Society of London, November 4, 1872.

tion of the daily urinary secretion, in bladder derangements for instance* as well as in kidney disease, that the urinary salts were very liable to be conveyed through the general circulation into the tissues of the eye, and when there retained, would quickly bring about an alteration in the specific gravity of its fluids, and produce opacity of the transparent media and disorganisation of the vitreous body, with such appearances as sparkling flakes of cholesterine (the *synchysis scintillans* of Desmarres). I am, however, not about to waste time by theorizing and speculating on this cause or that. I have, on the present occasion, the more solid groundwork of facts to lay before you; facts gathered from daily experience, and confirmed by work done in the *post-mortem* room; and I believe when you have examined my premises you will agree in the conclusions I have drawn from them, that there is something more than an accidental connexion between lenticular opacities and stricture of the urethra and its complications.

In the course of my every-day practice it is no uncommon circumstance for a patient to present himself complaining of a rapidly decreasing state of vision, and for which glasses afford no relief whatever. He will tell me he has experienced no change of importance in his general health, that he is very well, and so forth, "with the exception of some little trouble and inconvenience occasioned by an old stricture, which necessitates the use of a bougie." The kidneys and other organs being free from disease, it is very difficult to make him believe that "this old stricture" has anything to do with failing sight, and, therefore, he resists, for a time, all attempts to deal with his malady through the urethra. When this difficulty is at length overcome he is soon able to measure the improvement in vision. Having satisfied myself in a number of cases that stricture was a frequent predisposing cause of weak sight and of opacities of the media, I endeavoured to ascertain whether this had been observed in an institution where a large number of seafaring men were constantly under treatment for stricture and other diseases of the urinary organs. The facts gleaned in this way convinced me of the remarkable correlation of cataract, stricture of the urethra, prostatic and bladder disease, and which I venture to think you will agree bear out my conclusions. I have only further to remark, that the *post-mortems* were made soon after death, and although I was often dependent upon another for the state of the patient's vision, as well as of the internal organs, both before and after death, I can

* "So intimate is the union of the different organs which constitute the urinary system with each other, that disease can scarcely exist for a great length of time in one of them without extending to the rest."—BRODIE. The relation of kidney affections to cataract was fully discussed in a paper by the author read before the Medical Society about two years ago.

place the fullest reliance upon the notes so freely placed at my disposal.

I will first narrate three or four selected cases taken from my note-book, as these were partly the means of directing my attention to the connexion between eye disease and stricture, I may also add that no kidney disease was discovered, and that cataract often showed itself in men not far advanced in life. One was a gentleman in his thirty-fifth year only, nevertheless the incipient cataracts were coincident with the stricture, for he was confident that his sight was remarkably good before it appeared. The late Dr. Mackenzie would probably have pronounced this patient's case one of spurious cataract, but the days of spurious eye diseases of every kind, happily, passed away with the introduction of the ophthalmoscope.

As I have before stated, fifty-six examinations in all were made, but that I may not weary you with the subject, I shall confine my summary and concluding remarks chiefly to the twenty selected cases, which I have just narrated. Lenticular opacities, in various stages of formation, were clearly seen in seventeen of them. Three were doubtful; these, however, were not equally free from suspicion; in every instance the patient complained of defective sight, and five were reported as also suffering from amblyopia or amaurosis. In the first cases, for example, sight had been declining for some time, and one eye was pronounced glaucomatous. The lens certainly presented a characteristic colour before and after death.

Against Case 5 amblyopia was recorded, but striæ were visible in one eye; and in Case 12, an incipient state of opacity was certainly observed.

Case 13, although loss of vision was thought to be owing to lenticular opacity, as this was not confirmed at a subsequent period, I have placed it among the five doubtful cases.

In Case 15, the patient had suffered from albuminuria, and therefore the loss of sight was probably owing to deposits in the retinae. The patient was amaurotic, rather than cataractous, and the opacity noticed might have been due to turbidity of the vitreous humour. With regard to the relative frequency of stricture and prostatic enlargement, fifty-three of the patients suffered from the former, and thirty-five from the latter disease; frequently the two appeared in the same patient, but not invariably; and in three only did the presence of stricture admit of doubt.

In Case 10, for example, a congenital phymosis with extreme narrowing of the canal disguised a supposed bridle-stricture, situated about an inch from the orifice.

In Case 16, there was some doubt about the existence of a true stricture before death. The prostate was, however, much enlarged, and offered a considerable impediment to the intro-

duction of the catheter, and this was probably the proximate cause of the false passage.

In No. 19 also, it was not quite clear that stricture existed during the life of the patient. For these reasons I placed the above in a doubtful list. The bladder was diseased in nineteen patients, and in two the muscular walls of the viscus, as well as of the prostate gland, were in a state of fatty degeneration. With regard to the more important question of kidney lesion; as I have before stated, this is a well known cause of opacity, and, therefore, demands particular attention. In very many cases it is not unfrequently a question as to whether or to what extent renal disease is a primary or secondary cause of cataractions and amaurotic affections of the eye. It is, however, a fact that diabetes is often unassociated with retinal and lenticular opacities.

When, however, kidney disease was suspected in any of the cases it was at once made the subject of particular investigation, and in six only was a morbid state observed and believed to have been a predisposing cause of cataract. It was not only my own impression, but also of those who treated the patients, that kidney mischief could not have been the immediate cause of the loss of vision, even in all the six cases. Neither was it looked upon as the cause of bladder disease, and this seems borne out by the greater number of patients suffering from some affection of this viscus. I might then, in truth, almost dismiss the question of renal disease as a predisposing cause from this inquiry. It must not, however, be disguised, that in many instances well marked indications of a premature old age presented themselves. It is invariably so with men living fast and irregular lives, they break down under attacks, from which the more regular and careful frequently recover. An early general decline in health is doubtless a factor of importance in determining or precipitating the cataractous as well as other diseases. But too much stress should not be placed upon this fact; and for reasons already stated, it should not be permitted to invalidate the conclusions drawn from these investigations. Therefore, quite apart from other considerations, I feel persuaded that stricture of the urethra, with certain morbid states of the prostate gland, and bladder, are frequent predisposing causes of change in the dioptric media of the eye.

One word in conclusion as to the prospect of effecting a perfect cure in organic stricture of the urethra. It certainly appears somewhat difficult to say when a patient with an old stricture, that is, in the chronic stage, is perfectly cured. I can only say that in all my examinations of the urethras of those known to have been suffering from stricture, I have invariably found the elastic fibres, the mucous membrane, and the inorganic muscular tissue converted into a densely thickened cicatrix. I entertain grave doubts of the possibility of ever restoring the

canal to a normal state, when destruction of its most important elements has proceeded so far.—*Medical Press*

Over-work and premature mental decay and its treatment. By S. ROUTH, read before the Medical Society, London.

After some well-merited praise to the efforts of Dr. Richardson in the same direction, and some remarks on the nature of the present hard-working and competitive age as compared with former ages, he proceeded to show, upon the authority of Dr. Elam, that there had been a very large increase in the mortality from diseases of the brain in England. The increase of the population being 30 per cent while the mortality from diseases of the brain had increased fourfold, so deaths from paralysis and apoplexy had increased from 10,000 to 22,000 annually; deaths from insanity had also nearly doubled; and he showed that there was a direct relation in this increase with the agitation of the times. Dr. Maudsley and others had endeavoured to show that this numerical increase was due to increase of population, better search after and segregation of the insane. In the last published report of the Commissioners of Lunacy, the ratio per thousand of the total number of lunatics, idiots, and persons of unsound mind to the population showed an increase each year from 1869, when it was 1.86, down to 1872, when it reached 2.54. The author then enumerated the symptoms of mental decay, showing that they resembled the gradual changes that came over old people, and yet were very similar also to those induced by venereal excess in both sexes, except that in the latter there were symptoms of spermatorrhoea, which were absent in cases suffering from over-work. In both cases the tendency was to the production of idiocy from softening of the brain and insanity. He said there was reason to believe that the immediate cause of these symptoms was, deficiency of phosphorus in the brain, endeavouring to prove this by considering *seriatim* the following points:—1st. It is proved chemically that a man grows older and mentally weaker, or becomes idiotic, as the brain contains less phosphorus; this was shown by the analyses of L'Heretier. 2nd. The solidity of the brain in a measure depended upon protagon, a phosphoric compound, and those foods which were richest in phosphorus were found by experience to renovate most speedily weakened brain power, such as shell-fish and fish generally. 3rd. The assertion made by some that phosphorus could only be assimilated by previous conversion into phosphoric acid was combated, the effects of the two being shown to be perfectly different, phosphoric acid pro-

ducing, in large doses, fatty degeneration of the heart, liver, and kidney, whereas phosphorus produced necrosis of the jaw-bone, and excited the nervous and sexual systems. The opinion of Dr. Von Bibra was also quoted in evidence of this. Phosphorus also reduced or removed congestion of the brain. 4th. Dr. Routh next showed that those diseases produced by softening nervous matter or aneuris were precisely those which were cured oftentimes by the internal administration of phosphorus, viz, some forms of paralysis, eczema, and other skin affections, cerebral congestions, with great debility and insomnia. The authority of several writers was cited on these points,—Delpech, Prof. Fisher, of Berlin, Dr. Eames (in the Dublin journal), Dr. Burgess, and Dr. Hammond, of New York. 5th. The special treatment indicated in these cases was next considered—1st. Complete rest of mind, especially abstinence from all occupations resembling that upon which the mind has been overworked; 2nd. The encouragement of any new hobby or study not in itself painful, which the patient might select; 3rd. Tranquillity to the senses, which especially gives in these cases incorrect expressions, putting only those objects before them calculated to soothe the mind; 4th. A very nourishing diet, especially of shell-fish; 5th. The internal administration of phosphorus, whether in its allotropic form or as the "Solutio Phosphori Medicati," prepared according to Dr. Hammond's formula (N.B.—To be had of Mr. King, Crawford Street). Some cases bearing out the author's views were subjoined, but not read owing to the lateness of the hour.

Dr. FARQUHARSON thought that this high-pressure age involved competition almost before the child was out of petticoats; he could not get into a public school without a severe examination. Many great minds gave way under over-pressure and worry: this was the case very much in England. Those incomparable workers, the Germans, were wiser; their hours were earlier. He had seen over-work in boys set in as a sharp febrile disorder. There were symptoms of severe brain disorder, which was followed by loss of mental power. Care was required in allowing patients to resume their ordinary active intellectual work. It was very important to procure sleep. Small doses of narcotics were not as useful as fuller doses.

Mr. JABEZ HOGG asked if any ophthalmoscopic examination has been made? He had found the retina in an anæmic state.

The PRESIDENT thought it was rather over-worry than over-work that was injurious to the full-grown brain. Neglect of ordinary hygienic rules, accompanied by worry and much work, was injurious. Over-work was he thought injurious to the young but not to the adult.

Dr. ROUTH thought worry was evidence of failing power.

Anything which exhausted phosphorus in the brain caused failing mental power. Its restoration was therefore indicated.—*The Medical Press.*

The Use and Abuse of Opium.

It is not very long since a sort of demonstration was made against the indiscriminate prescription of alcohol, and now there are signs that a similar cry may be raised, if not here, in America, against opium. We have noticed from our exchanges that opium-eating seems on the increase in some of the States, and there is a growing sense of its evil. One of the latest statements that have met us is in the November number of the *Detroit Medical*, the editor of which tells us that in comparatively a limited field of observation he has met several cases in which the opium habit was certainly contracted by obeying the physician's directions; and adds that it is "well for us all to look the facts in the face, clear our skirts if possible, protect our patients, and warn the public."

In the Third Annual Report of the state Board of Health of Massachusetts, we find many interesting facts collected by Dr. F. E. Oliver. The questions sent by the Board to the physicians of the State were:—

1. "Are preparations of opium used by the people except for the relief of pain?"
2. "Has the injurious use of opium increased of late years, and if so, the cause of such increase?"

The habit of opium-eating seems to have originated about 1840. In that year 24,000 pounds were imported. Last year, with a population little more than double that in 1840, we imported about 240,000 pounds, ten times the amount imported in 1840.

Those best posted in the sale of the drug assert that thirty per cent would cover all that is used in prescriptions. Allowing twenty per cent. for other legitimate purposes, we still have one-half unaccounted for.

Of the one hundred and twenty-five physicians heard from in answer to the first question, forty report that they know of no case of opium-eating. The remaining eighty-five state that opium is used to a greater or less extent in their circuits.

In the smaller towns the number given varies from one to twelve. In larger towns the number is large. Some druggists report no sales of opium without prescription. Others have from one to six regular customers.

To estimate the exact number of opium-eaters in the State from the data alluded to was impossible, but it is certain that the number must be considerable.

The daily amounts reported vary with each case. The largest amount of crude opium taken was eight ounces per month, or one hundred and twenty grains daily. The largest amount of laudanum taken daily was one ounce, of morphia one-third of a drachm. One case is reported in which thirty grains of morphia were taken at one dose, and an equal amount the next day, the latter being followed by an ounce and one-half of laudanum. No injurious effect was observed.

The general opinion was that the habit was increasing. Among the proximate causes of the opium habit, are mentioned:—

1. Opiate treatment of certain nervous and other chronic affections. This is the most common.
2. Injudicious and often unnecessary prescription by the physicians is often mentioned by the correspondents.
3. Depressed conditions of the nervous system from a thousand different causes. Those most generally exempt from this vice are those whose occupations allow an abundant supply of fresh air and nourishing food with regular hours of sleep.
4. Simple desire for stimulation; opium was often selected because it was more "genteel" than alcohol.
5. Nursery medication by soothing syrups.

Dr. Oliver observes that it is very difficult to obtain statistics of the abuse of opium, so that those presented in his report do not pretend to be in any sense complete. Still, they indicate a condition of things which should awaken the attention of every humane physician.

MEDICAL INTELLIGENCE.

(General Orders by the Commander-in-Chief.)

Officers Travelling.

26th December 1872.

No. 113.—Instances having occurred of Commissioned and Warrant Officers having made private arrangements for their journeys, when directed to travel at the public expense, and this practice having been found to create difficulty in the subsequent adjustment of their claims for the recovery of expenditure so incurred. The Commander-in-Chief enjoins strict adherence to the provisions of paras. 5 and 7 of G. O. G., No. 773, page 614 of 1864; and directs, that Officers so ordered to travel shall invariably apply for instructions to an Officer of the Quarter Master General's Department, a Brigade Major or Station Staff Officer.

It is only when circumstances render such application impossible, that Officers are at liberty to provide themselves with conveyance under private arrangements.

Pension—Widows and Orphans—

Military Officers.

No. 14 of 1872.

14th January 1873.

The following General Orders by the Government of India are republished:—

No. 1315 of 1872.—Under the authority of Her Majesty's Secretary of State for India, the Right Honorable the Governor-General in Council has great satisfaction in publishing to the Indian Army the following regulations, which are designed to secure suitable provision for the widows and orphans of officers of the Indian Staff Corps, officers of the Indian Medical Department, and Chaplains on the Indian Establishment not being subscribers to the late Military and Medical Funds.

Such pensions and compassionate allowances as are, by Royal Warrant, granted to the widows and families of British Military officers, are already granted, from Indian revenues, to the widows and families of Military officers in

the service of the Government of India, who are excluded from the advantages of the late Military and Medical Funds; and it is to be clearly understood that the Government of India does not intend, by these present supplementary regulations, to sanction any further expenditure for this object from the Indian revenues. On the other hand, the Government of India does not, of course, wish that the Indian revenues, should, in any way, profit by these regulations.

The Secretary of State for India in Council has reserved to himself the absolute right to regulate, from time to time, the contributions to be required from officers, in accordance with these principles, under these regulations, and to make any alterations in the regulations themselves that may appear to him equitable; provided always that the scale of pensions fixed thereby shall be reduced in the case of actual incumbents. The Secretary of State in Council will endeavour to adjust the contributions to be levied from officers exactly, so that they shall neither be too large, nor too small, to supply the pensions provided for by these regulations. But if it should appear on experience that they have been fixed too low, the Government will not require any supplementary retrospective payments; and if they are found to have been fixed too high, no claim to refund will be admitted.

No insurance fund is established by these regulations. The contributions will be credited, and the pensions charged, directly to the Indian revenues as military receipts and charges. But, in order to adjust the rates of contribution, from time to time, to what is necessary to supply the pensions provided for by these regulations and no more, a separate *pro forma* account will be kept of all contributions levied, and all payments made, under these regulations, and of the interest which would have been allowed upon such contributions if a mutual insurance fund had actually been established.

In accordance with the principle announced in this notification, that the Government does not intend that the pensions provided by these regulations shall be any charge to the Indian revenues, the rates of interest and of exchange with England, to be allowed in this *pro forma* account, will be the rates which may be fixed from time to time by the Secretary of State in Council upon a consideration of the market rates of the day. For the present the rates to be used are 4½ per cent. interest, and 1s. 11d. per rupee exchange; and the

contributions now prescribed have been calculated at these rates.

All needful statistics of ages, births, deaths, and marriages will be carefully registered, and these statistics, with the *pro forma* accounts, will be submitted at such periods as may be determined by the Secretary of State in Council to such actuary or actuaries as he may select, with instructions to investigate and ascertain whether the rates of contribution are such as will, at the rate of interest and exchange then to be re-considered and refixed, supply the pensions payable under these regulations, and no more. The expense of such actuarial inquiries and reports shall be debited in the *pro forma* accounts reported upon.

Upon the report of the actuary or actuaries, the Secretary of State in Council will order any necessary alterations in the rates of contribution.

The report of the actuary or actuaries, with the orders of the Secretary of State in Council thereupon, shall be published in the *Gazette of India*, and any alteration ordered in the rates of contribution will take effect from the beginning of the month following the date of such publication. No retrospective adjustments will be made.

The rates of contribution fixed for immediate adoption have been calculated by Major-General Hannington, and approved by Mr. Samuel Brown, F.R.S.A. The reports of these gentlemen and the tables compiled by General Hannington will be furnished to any officer who desires to see them. The regulations will come into operation from the 1st of January 1873.

Regulations for the provision of pensions for the widows and orphans of Military, Medical and Ecclesiastical Officers in the service of the Government of India.

1. Pensions will be provided under these regulations for the widows and orphans of the following officers on the Indian Establishment, not being entitled to the benefits of any of the late Military and Medical Funds:—

Officers of the Staff Corps.

Officers of the Indian Medical Department.

Chaplains.

2. Any officer who has entered the service before the 1st of January 1873, may provide pensions for his family under these regulations, or not, at his option. (*See Appendix Form A.*)

3. Every officer who enters the service on and after the 1st January 1873, must, as a condition of his appointment, provide pensions for his family under these regulations.

4. Any officer with whom, by Regulation 2, it is optional to provide pensions for his family under these regulations, but who does not, before the first July 1873, intimate his intention to make such provision, will thereafter be allowed to do so only on production of a medical certificate of sound bodily health. An officer who does not, before the 1st July 1874, announce his intention to provide pensions for his family under these regulations, will not be allowed to do so, save under the special order of the Governor-General in Council.

5. For the purpose of these regulations, officers are classed as follows:—

Class I.—General Officers, and Inspectors-General, Medical Department.

Class II.—Lieutenant-Colonels, Archdeacons, Deputy-Inspectors-General Medical Department, and Surgeons-Major.

Class III.—Majors, Senior Chaplains, and Surgeons.

„ IV.—Captains, Junior Chaplains, and Assistant Surgeons who have served the Government of India for more than six years.

Class V.—Lieutenants, and Assistant Surgeons who have served the Government of India for less than six years.

6. The pensions provided under these regulations are payable, monthly in India, and quarterly in England, and to date of death.

7. The amounts of the pensions provided are as follows, in addition to any pensions or compassionate allowances granted under Royal Warrant:—

Table I.—Pension to a widow during widowhood, according to the class of her husband at time of his death.

	Class of Husband at death.				
	I.	II.	III.	IV.	V.
	£.	£.	£.	£.	£.
Amount of pension of widow.	160	130	100	70	40

Table II.—Pensions to the orphan children of all classes alike.

	From birth till age of 6 years.	From age of 6 till age of 12 years.	From age of 12 till age of 21 years.	To females only from age of 21 years for life, or till marriage.
Amount of pension to each orphan...	£.	£.	£.	£.
	10	20	30	45

8. The pension of a minor orphan will be paid to his or her mother, or other duly appointed or recognised guardian.

Contributions.

9. The contributions for pensions under these regulations and the pensions of widows, will be regulated by the class of the contributing officer. An officer cannot secure a higher pension for his widow by contributing as if he belonged to a higher class.

10. Contributions will be deducted by paymasters or other disbursing officers from the pay abstracts of officers contributing.

11. *Donations* may be paid in one sum, or in twelve equal monthly instalments. If a donation be paid in instalments, interest on the unpaid portion will be levied at the rate of 4½ per cent. per annum. The balance of any contribution due at an officer's death will be recovered rateably, without interest, from the pensions of his widow and orphans, in twelve monthly instalments in India, or four quarterly instalments in England.

12. The following are the rates of donations and monthly contributions prescribed for the present:—

Table III.—Donation on Marriage.

Class of Contributor.	On entering the service of the Government of India, married, or on marriage, or remarriage.		On promotion to a higher class.	
	In India.	In Europe.	In India.	In Europe.
Class I. ...	Rs. 4,000	£. 384	Rs. 750	£. 72
„ II. ...	2,000	192	375	36
„ III. ...	1,000	96	250	24
„ IV. ...	500	48	125	12
„ V. ...	250	24	...	...

Disparity of Age.

If the age of the wife be less than the age of the husband by twelve years or more, then the donation on entering the service of the Government of India, married, or on mar-

riage, or re-marriage, shall be regulated by the following table:—

Table IV.—Donation of an officer entering the service of the Government of India, married, or on marriage, or re-marriage, when the age of the wife is less than the age of the husband by twelve years or more.

Age of husband.	Classes IV and V.		Class III.		Class II.		Class I.				
	Wife younger than Husband by										
	12 years and not more than 15 years.	More than 15 years.	12 years and not more than 15 years.	More than 15 years.	12 years and not more than 15 years.	More than 15 years and not more than 20 years.	More than 20 years.	12 years and not more than 15 years.	More than 15 years and not more than 20 years.	More than 20 years and not more than 25 years.	More than 25 years.
29	253										
30	285										
31	356										
32	411										
33	470										
34	533	533*									
35	609	437									
36	671	513									
37	746	651									
38	825	761									
39	908	872	1,113	1,691							
40	995	986	1,379	1,955							
41	1,086	1,501	1,502	1,428							
42	1,180	1,218	1,555	1,601							
43	1,279	1,337	1,698	1,777	2,110						
44	1,382	1,453	1,850	1,935	2,305	2,377					
45	1,483	1,580	2,009	2,120	2,520	2,691	2,707				
46			2,173	2,320	2,824	2,984	3,047				
47			2,343	2,507	3,087	3,256	3,364				
48			2,518	2,666	3,320	3,503	3,659				
49			..	..	3,521	3,737	3,933				
50			..	..	3,692	3,947	4,183	4,499	4,813	5,100	5,136
51			..	..	3,832	4,135	4,410	4,759	4,973	5,360	5,390
52			..	..	3,941	4,302	4,615	4,638	5,146	5,513	5,655
53			..	..	..	..	..	4,735	5,321	5,738	5,931
54			..	..	..	..	..	4,850	5,512	5,975	6,218
55			..	..	..	..	..	4,943	5,716	6,226	6,516
56			..	..	..	..	..	5,136	5,925	6,489	6,823
57			..	..	..	..	..	5,397	6,116	6,764	7,142
58			..	..	..	..	..	5,485	6,378	7,063	7,472
59			..	..	..	..	..	5,702	6,616	7,352	7,813
60			..	..	..	..	..	5,928	6,866	7,665	8,163

* The fine is less in this case, and in some other cases when the disparity of age is greater, owing to the increased probability of the second marriage of the wife.

Examples.—A Captain, aged 37, marries a lady aged 22: the difference of age is 15, and the marriage donation is Rs. 746.

A Colonel, aged 54, marries a lady aged 29: the difference of age is 25, and the marriage donation is Rs. 5,976.

Table V.—Donation on the birth of a child, and on entering the service of the Government of India, for each child then living.—By all classes alike.

	In India.	In Europe.
	Rs.	£
For a son	156	15
For a daughter	250	24

Table VI.—Monthly contribution by every officer according to his class.

Class of Contributor.	By each married officer.		By each officer who is unmarried or a widower.	
	In India.	In Europe.	In India.	In Europe.
	Rs.	£ s.	Rs.	£ s. d.
Class I.	50	2 10	25	1 4 0
" II.	40	2 0	16	0 15 4
" III.	30	1 10	12	0 11 6
" IV.	20	1 0	7	0 6 8
" V.	10	0 10	4	0 3 10

Table VII.—Additional monthly contribution for each child living on the first day of the month.—By all classes alike.

	In India.	In Europe.
	Rs. A. P.	£ s. d.
For each son	1 0 0	0 2 0
For each daughter	2 8 0	0 5 0

13. If a contribution or donation be not paid at due date, interest will be levied thereon as the rate of $4\frac{1}{2}$ per cent per annum.

Reports of Marriages, Births, and Deaths.

14. A married officer admitted into the service must report the fact of his marriage at the time, or of his marriage thereafter, or of the birth of a child born in wedlock, or of the death of a wife or child, within three months of the occurrence to the Controller of Military Accounts of the Presidency in Forms B, C, D, and E annexed to these regulations.

15. The birth of every child born alive must be reported; but if a child die before it is thirty days old, no payment in respect to it will be required under Regulation 12.

Posthumous Child.

16. A pension will be granted to a posthumous child on payment of the donation prescribed in Table V, which may be recovered by twelve monthly instalments in India, or four quarterly instalments in England. The report of the birth of a posthumous child must be made in Form D, the last sentence being omitted.

Commutation of Contributions.

17. An officer who desires to complete his payments during the term of his service in India, so as to be exempt from contributions after his retirement, will be permitted to do so at rates to be determined by the tables appended to General Haemyington's report, dated London, 7th June 1870, or by any other tables that may be hereafter substituted therefor by the Secretary of State for India in Council.

18. An officer may, at any time, commute his future payments into a single payment, the amount of such payment being regulated by the same tables.

Duration of Pensions.

19. If a widow re-marry, her pension will cease during coverture; but if she again become a widow, she will become entitled to pension again as widow, of her first husband, or, if her later husband have been a contributor, then at her option, as the widow of her last husband. A widow can only receive one pension.

20. The pension of a male orphan is payable until he attains the age of 21 years.

21. The mother or guardian of a male orphan who has completed the age of 16 may, at any time thereafter (on application in Forms F to H annexed to these regulations), have the residue of his pension commuted into a single payment for the due application of which the mother or

guardian is held responsible. The following table gives the commuted values of such pensions:—

Table VIII.—Showing the present value of the pension of a male orphan according to his age.

Years.	16	17	18	19	20
Months.	£	£	£	£	£
0	129	106	81	56	28
3	123	100	79	49	21
6	117	94	68	42	14
9	111	87	62	35	

22. The pension of a female orphan continues until her marriage, and then ceases absolutely. It does not revive on widowhood.

Good Conduct.

23. The pensions provided under these regulations shall, in all cases, be held during good behaviour only, and will be withheld if any pensioner is found to be leading an immoral life, or on proof of any gross misconduct. The order of the Secretary of State for India in Council in any such case shall be final and conclusive.

Alienation of Pension.

24. A pension paid under these regulations may not be transferred or assigned, or in any way alienated, from the pensioner to whom, or for whose benefit, it is payable.

Passage Money.

25. An officer may, by a special contribution, provide passage money from India for his widow and orphans. The amount so secured will belong to the officer's estate, but will be primarily applicable to the provision of passage money and outfit for his widow and children.

NOTE.—*The particular rules under which this benefit can be secured will be hereafter notified.*

Transfer to Her Majesty's Corps.

26. Officers who may be transferred from the Indian Staff Corps to Her Majesty's Line Regiments will be entitled to receive back the amount of their contributions, after deduction of a sum equivalent to the risk borne by the fund during their membership.

Half Pay.

27. Married officers placed on half pay may receive back such portion of their contributions as is in excess of the risk borne by the fund during the term of their membership, or they may continue to subscribe at Indian rates for full benefits, or at lower rates for reduced benefits. In the event of their return to full pay, they shall in addition to the subscription of their rank, be required to pay such donation as the circumstances of the case may demand.

Retired Officers.

28. Married officers who retire from the service on the pension of their rank may continue to subscribe in that rank, or they may withdraw from the fund, receiving back such portion of their contributions as is in excess of the risk borne by the fund during the term of their membership; but the usual subscription will be deducted from the pension of all such officers until they shall have intimated in writing their intention of withdrawing.

Dismissed Officers.

29. An officer who is dismissed the service by sentence of a court-martial, or by other competent authority, will cease, *ipso facto*, to be a contributor under these regulations, and will have no claim to any refund. His family will not be entitled to any pensions under these regulations.

Certificates.

30. Certificates of survival, of continued widowhood, and of the survival of children must be furnished annually in the annexed forms I to N, to the office from which pensions are drawn.

APPENDIX.

Note.—In England all reports must be made to the Secretary of State for India, Military Department.

Form (A) of a letter from an officer with whom it is optional under Regulation II, to contribute under these regulations, announcing his intention to do so.

To—The Controller of Military Accounts for the Presidency of

SIR,—I have the honor to announce my intention of contributing for pensions for my family under the regulations published with the Notification by the Government of India, in the Military Department, No 1315, dated 28th December 1872.

I agree to be bound in every respect by the said regulations, and by any orders in modification thereof that may be hereafter, passed by the Secretary of State for India in Council.

My age is

My wife's age is

We were married on the

18

A certified copy of the register of our marriage is herewith transmitted.

The names and birthdays of my children are as follows:—

Form (B) of a letter from an officer reporting his having joined the service of the Government of India, married. (See Regulation 14.)

To—The Controller of Military Accounts for the Presidency of

Sir,—With reference to the Family Pension Regulations published with the Notification by the Government of India, in the Military Department, No. 1315, dated 28th December 1872, I have the honor to report that I was admitted to the service of the Government of India, married on the

18

My age is

My wife's age is

We were married on

A certified copy of the register of our marriage is herewith submitted.

The names and birthdays of my children are as follows:—

Form (C) of a letter reporting marriage. (See Regulation 14.)

To—The Controller of Military Accounts for the Presidency of

Sir,—With reference to the family Pension Regulations published with the Notification by the Government of India, in the Military Department, No. 1315, dated 28th December 1872 I have the honor to report my marriage on the

18

to Miss

A certified copy of the register of our marriage is herewith transmitted.

I was born on the

My wife was born on

Form (D) of a letter reporting the birth of a child. (See Regulations 14 and 15).

To—The Controller of Military Accounts for the Presidency of

Sir,—I have the honor to report the birth to me of a ^{male}_{female} child on the and I request that the name may be entered in the pension register kept under the regulations published with Notification by the Government of India, in the Military Department, No. 1315, dated 28th December 1872, and that the deductions thereby prescribed may be made from my pay.

Form (E).—Report of death. (See Regulation 14).

To—The Controller of Military Accounts for the Presidency of

Sir,—I have the honor to report the decease on the of my ^{son}_{daughter} born on the (or of my wife) A burial certificate is herewith transmitted.

Form (F) of application for the commuted value of the pension of a male orphan over 16 years of age (See Regulation 21).

Sir,—I, A. B., being the mother (or guardian) of C. D., son of E. F., late a in the service of the Government of India, having now an opportunity of placing my son (or ward) in a suitable position, request that the commuted value of the remaining portion of his pension may be granted to me under my guarantee for its proper application to his use.

The age of my son (or ward) is now years months, and I submit herewith a certificate of his health.

Form (G).—Medical certificate to be furnished by mother or guardian applying for commutation of a male orphan's annuity. (See Regulation 21).

We do hereby certify that we have carefully and personally examined into the state of the health of C. D., son of the late E. F., and that we consider him free from any disease likely to prevent his attaining the age of twenty-one years.

(Sd.) G. H., } M. D.
I. K., }

Form (H).—Mother or guardian's receipt for commuted value of a male orphan's annuity (See Regulation 21).

I, A. B., mother (or guardian) of C. D., son of the late E. F., do acknowledge to have received the sum of being the commuted value of the pension receivable by the said C. D., from till he attain the age of 21 years; and I hereby bind myself to account if called on by the Secretary of State for India, for the due application of the said sum for the use and benefit of the said C. D.

Form (I).—Certificate of survival of widow and of continued widowhood. (See Regulation 21).

This is to certify that A. B., widow of E. F., late a in the service of the Government of India, is living in the parish of in the county of , and that, to the best of my knowledge and belief, she has not contracted marriage since the death of the said E. F.

Dated at } Minister, Church-War-
This day of 18 . } den, or Magistrate.

Form (J).—Certificate to be furnished by a widow without minor children. (See Regulation 30)

I, A. B., widow of E. F., late a in the service of the Government of India, do hereby solemnly declare that I am still unmarried.

Form (K).—Certificate to be furnished by widow having a minor child or children.

I, A. B., widow of E. F., late a in the service of the Government of India, do hereby solemnly declare that I am still unmarried, and that my minor children namely, C. D., &c., for whom I receive pensions, are living on this date.

Form (L).—Certificate to be furnished by the guardian of an orphan who is under the age of 21 years.

I, A. B., guardian of C. D., ^{son}_{daughter} of E. F., late a in the service of the Government of India, do hereby certify that the said orphan was living on the

Form (M).—Certificate to be furnished by a female orphan who is of the age of 21 years and upwards.

I, L. M., daughter of E. F., late a in the service of the Government of India, do hereby solemnly declare that I am unmarried and have never been married.

Form (N).—Certificate of survival of a female orphan who is of the age of 21 years and upwards, and that she is still unmarried.

This is to certify that L. M., daughter of E. F., lately a in the service of the Government of

India, is living in the parish of in the county of ; and that, to the best of my knowledge and belief, she is not married, and has never been married.

Dated at } Minister, Church-War-
This day of 18 . } den, or Magistrate.

Hospital Purveyors.

No. 1 of 1873.—In modification of paragraph 5 of G. G. O. No. 550* of the 5th June 1868, it is hereby notified that hospital Purveyors will in future consist of two classes, who will be apportioned, as far as practicable, as follows:—

1st Class at Rs. 50 per mensem.—To Divisions and Brigades of Artillery, Regiments of Cavalry and Infantry, large Convalescent Depôts, Wings of Regiments, and a Force of Artillery consisting of two Batteries.

2nd Class at Rs. 40 per mensem.—To separate Batteries of Artillery, and to all Detachments of European Cavalry and Infantry with which Hospitals are established under Medical Officers.

MADRAS MEDICAL FUND.

Retirement.

Surgeon Major J. Miller, M. D., from 2nd October 1872.

Marriages.

Miss Flora Maye Macleod, daughter of Surgeon Major A. C. Macleod, on 4th November 1871, to Major John Henry Tripp, 76th Regiment of Foot.

Miss Harriett Mary Mahoney vanSomeren, daughter of Surgeon Major W. J. vanSomeren, M. D., on 21st December 1872, to Frank M. Bowden, Esq.

FORT ST. GEORGE, }
31st January 1873. }

* Madras, G. O. G., 19th June 1863, No. 232.

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c., from 29th December 1872 up to this date for securing the following rates of pension.

Names of Subscribers.	Children's dates of birth.	Sex.	Rates of Pension secured.	To what period.	Payments how made.
J. G. Reed	10th Oct. 1872	Male	Full	To 18 years	By Donation and Subscription.
A. H. Beaman	25th Oct. 1872	do.	do.	do.	do.
T. Pritchard, V. S.	6th Dec. 1872	do.	Half	do.	do.
W. H. S. Burn	26th Oct. 1872	Female	Full	To D or M &c.	By Donation.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
31st January 1873.

List of Wife.

On account of whom Payments have been notified by the receipt of Paymaster's Statements &c., up to this date for securing the following rate of Pension.

Name of Subscriber.	Date of Marriage.	Rate of Pension secured.	Payments how made.
T. Pritchard, V. S.	28th Oct. 1863.	* Half.	By Donation.

N. B.—The rate of Pension marked thus * is additional to that previously secured.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
31st January 1873.

TO CORRESPONDENTS.

DR. JOHN SHORTT—Received with thanks.
Inspector General, I. M. D., do.

BOOKS, &c., RECEIVED.

St. Bartholomew's Hospital Reports, Vol. viii.
Journal des Connaissances Médicales; December, 15th, 30th.
The Medical Record; November, 15th.
The Medical Press and Circular; December, 4th, 11th, 18th, 25th.
The Doctor; December 1st.
The Indian Medical Gazette; January, 1st, 1873.
* The Lancet; for June, July, and August, 3rd.
The British Medical Journal; June, July, and August, 3rd.
* Edinburgh Monthly Journal; June, and July.
* Pharmaceutical Journal; June, July, August, 3rd.
American Journal of Insanity; July.
The Hand-Book for Midwives by Hy. Fly Smith, M. D.
* Braithwaite's Retrospect; January to June, 1872.
The Thanantophidia of India, by J. F. Fayrer, M. D.
* On account of the unexpected retirement from business of our London Agents, (Messrs. Hardwicke and Sons,) a large number of exchange periodicals have only lately been received.

THE MADRAS
MONTHLY JOURNAL
OF
MEDICAL SCIENCE.

No. XXXIX.—MARCH, 1873.

ORIGINAL ESSAYS.

ART. X.—*Notes, theoretical and practical, on Niemeyer's Pamphlet entitled 'On the symptomatic treatment of Cholera.'* By GEORGE SMITH, M. D., Physician to the General Hospital, &c.

(Continued from page 85.)

The application of external cold, as advocated by Niemeyer, moderates the intestinal congestion and diminishes the transudation, whilst at the same time it exerts a powerful influence for good upon the nerve centres. These beneficial effects are immediately observed, and are further secured, not by the paroxysmal, but by the continuous application of cold.

One or two points in connection with this matter deserve a passing notice. As a general rule the body of a cholera patient offers to the hand an icy-coldness. That this coldness is not confined to the cutaneous surface is proved by the low temperature of the expired air, and by the coldness of the muscles, which is distinctly perceptible even through the artificially heated skin. Though the skin be icy cold to the hand, yet the patient complains not of cold but of heat, he throws off the bed clothes, prefers to lie with the surface exposed, feels refreshed after the cold douche, and pushes

aside, if he have strength, the hot water tins, hot bricks, or hot sand bags so generally used in cholera.

Sensory phenomena of this kind are by no means unusual in disease. During the rigor of intermittent fever the patient feels cold even when the temperature of the surface stands at 102° F., and conversely, in cholera, he suffers from surface warmth when the thermometer indicates 93° F.

Both experiences,—and others from lesions of the spinal cord might be advanced—however illusory as impressions of sense, are not illusory as matters of pathological fact. The trophic nerve centres, in cholera, are in a condition of congestion with shock the result of the intestinal lesion, and this condition is probably identical with that induced, under ordinary circumstances, by elevated temperature applied to the surface of the body accompanied by severe shock; if so, then we can understand why cold applied externally relieves, whilst heat increases the suffering, the shock, and the severity also of the intestinal hyperæmia. The increased distress, which a cholera patient experiences when attempts are made to raise the surface temperature by the application of moist or dry heat, are familiar to all. It may be difficult to give up a time-honored practice, and to resist the natural impulse to restore warmth to the clammy surface of the patient by the application of heat, but I am satisfied that the practice is one of more than doubtful utility, and that it is more honored in the breach than in the observance. The external application of cold in cholera ameliorates the symptoms of the disease, lessens the congestion and shock of the nerve centres, and, above all, is grateful to the feelings of the patient.

Cold applied, with such therapeutic objects distinctly in view, should be used continuously in all the stages of cholera, more energetically and more continuously, if possible, during the asphyctic stages. Whether better results are to be obtained by applying cold directly over the nerve centres, as advocated by Dr. Chapman, or to the cutaneous surface of the patient, as here advised, becomes a question, not of theory so much as of detail, and of practical experience.

It is by no means inconsistent with these principles to recognize the propriety, at a later stage of the disease, of assisting a re-action which has already commenced, but which is progressing unsteadily, alike with internal stimulants and with external heat. In such cases the special

congestion and shock are disappearing, the local disease is arrested, and the nerve centres, in regaining their normal *vis nervosa*, are regaining also their normal impressibility to cold and heat. At such a time it is of importance to assist the enfeebled heart to restore the circulation, and to resuscitate the suspended functions of the system; with this view valuable assistance would probably be derived from electricity, and from the hypodermic injection of ammonia or of digitaline.

Niemeyer does not confine his practice to the external application of cold, for he administers ice and ice-cold water internally, in order to relieve thirst, to lessen the sensation of gastric burning, and to assist in rendering fluid the inspissated blood.

The powerful influence exerted by the mediate and immediate application of cold to inflamed parts, has, of late years, forcibly attracted the attention of the profession. The value of ice, iced water, and of the cold douche in the treatment of cholera has long been recognized by the profession in India, but it is just possible that many, like myself, may not have used these means in the definite, continuous, and careful manner suggested by Niemeyer, and with the object, present to his mind, of diminishing intestinal congestion.

In future, it might be well, in Cholera, to give the external application of cold a fresh trial, either in the form of the wet sheet, the pack-sheet, the tubular cooling pad recommended by Dr. Roberts, or the spinal ice-bags of Dr. Chapman. It is possible that the most potent means may be found to be the cold sheet as advised by Niemeyer, provision being made for its application without disturbing the patient, or interfering with the passage of the motions. At the same time this sheet might be supplemented by the cold douche to the chest, in cases of threatened failure of the respiration and of the heart's action.

In connection with this subject it may be remarked that we have ample experience on record of the efficacy of cold when applied to the abdomen in subduing internal inflammations, and that we are daily receiving detailed evidence of its value in reducing the dangerous temperatures of specific fevers, as well as of the febrile exacerbations of rheumatism, pneumonia, pleurisy, &c. Its value, also, as a direct application to inflamed mucous surfaces is familiar to us in

the treatment of acute gastritis and tonsillitis, and of diphtheritic affections of the fauces.

Cold, however, is a potent agent, and if too long or unguardedly used must tend to increase the state of collapse. There are doubtless limits to its use in cholera, and these will best be discovered by careful experiment guided by the clinical thermometer. Niemeyer remarks, "with regard to the use of the cold applications and the administration of ice, I am guided by the patient's feelings, and continue them so long as they are asked for." This advice is hardly consistent with scientific practice.

I have no intention of extending these notes so as to embrace the treatment of minor details of the disease, or the consideration of the various forms of re-action; it will be enough to say that, if reaction sets in violently, Niemeyer endeavours to prevent inflammatory complications in the brain by the application of bladders of ice to the head; he insists also upon a strict adherence to regimen, and fears depression of the general powers, because "it decidedly promotes that acute marasmus which is always threatened should any consecutive intestinal mischief be set up." He recognizes the typhoid character of most of the sequelæ of cholera, and admits how little treatment avails to remove the more serious of these secondary affections. He notes the hydrecephaloid condition often seen in children after cholera, a condition which he has observed to pass off under the careful administration of small quantities of wine, soup and milk. He regards with grave apprehension cases in which repeated dejections of a greenish and purulent kind appear, along with tenderness on pressure over the abdomen. In this condition of consecutive intestinal inflammation he restricts his patients to mucilaginous drinks, and applies poultices to the abdomen, avoiding, as far as possible, the administration of internal remedies.

In conclusion, Niemeyer remarks: "My results would turn out unfavorable if I only included as cases of cholera those which had run on to the stage of asphyxia. The results would be more favorable if, in addition, I included such as presented the intestinal symptoms, together with a lowering of the cutaneous temperature and of the pulse; but the number of recoveries would far exceed the number of deaths if, in my statistical comparison, I included all those diseases which I regard as different forms or stages of cholera. Not one of my patients who was treated before

the symptoms of paralysis showed themselves with calomel, and the cold applications, was either affected with a more severe stage of the disease, or died. When the paralytic symptoms also were present only in a moderate degree, I lost comparatively few of my patients, and those under the most unfavorable circumstances. But the number of recoveries, even from the asphyctic form of cholera would be remarkably high, if a large portion of the sufferers had not sunk after the disease itself had been overcome, either from exhaustion or from some consecutive malady."

It is not from the experience of a large hospital in India that the beneficial effects of different systems of treatment in cholera can always best be ascertained. Most of the cases brought to the General Hospital are, when admitted, far advanced in the disease, many of them indeed actually moribund. Very few of the cases present themselves in the earlier stages of the malady, hardly one within some hours of its commencement. Rather I should say ought the investigation to be carried out in jails, in public institutions, and in private practice, where cases are early seen, and where, as a general rule, their treatment can be carefully observed from the commencement. One point should never be overlooked in this inquiry, namely, that one epidemic is much less fatal than another, and that the treatment which secures abundant success in the milder may be utterly powerless in the graver forms of the disease.

I have long been impressed with the belief that transfusion (either of blood, or of salines, or of some nutritive fluid like that recommended by Dr. Richardson, or of a compound capable of supplying the saline, watery and fibrine constituents of the blood) will ultimately prove an essential element in the successful treatment of the disease. As a profession we appear to be losing sight of the remarkable effects of transfusion in cholera and in hæmorrhage. What a wide field for the practice of transfusion exists in the class of blood poisons, in the class of dietic diseases, such as scorbutus, in the class of anemias, and in cases of hydrophobia, snake bite, &c. The day may yet come when transfusion will be as common as hypodermic injection, and when the intestinal mucous membrane will not be regarded as affording to medicinal agents the most facile door of entrance to the general system. I do not overlook the unsuccessful results which have hitherto followed the employment of saline injections into the veins, but I

cannot help remarking that the majority of these experiments were conducted on patients nearly, if not already *moribund*. Were the saline injections used more diluted, introduced more slowly and in less quantity, and were they had recourse to during the initial period of disease, the results would probably be far more encouraging than they have been hitherto. Dr. W. Budd's remarks on this point are very graphic. "The immediate effects of this treatment are very striking, and show that a large share of the symptoms of malignant cholera is due to the loss of the serous part of the blood. After the injection of a few ounces, the pulse, which had ceased to be felt at the wrist, becomes perceptible, the heat of the body returns, and by the time three or four pints have been injected, the pulse has become good, cramps have ceased, the body that could not be heated has become warm, and instead of a cold exudation on the surface, there is a genial moisture, the voice almost extinct, is now natural, the hollowness of the eyes, the shrunk state of the features, the leaden hue of the face and of the body have disappeared, and the expression has become animated and the mind cheerful, restless and uneasy feelings have vanished, and sense of oppression of the precordia has given way to comfortable feelings, and thirst, however urgent before the operation, has ceased"——"Surely it is not too much to say that, compared with the commonest diseases that fall under our eyes, the pathology of a disease, of which this can be said, is simplicity itself."

I am further convinced that transfusion alone will not be sufficient, that it will fail in a majority of the cases unless, at the same time, treatment calculated to arrest the local hyperæmia be adopted. With transfusion to hold in check the general symptoms, to stimulate the heart and nerve centres of respiration, to supply the blood with water, salts and fibrine, and to cancel nerve shock, the patient is in a highly favorable condition for the action of remedies, even should their therapeutic action be of a somewhat depressant kind. May we not hope to find in our copious repertorium of medicines calculated to arrest inflammation of mucous membranes, the efficient agent of which we stand in so much need, be it arsenic or antimony, calomel or belladonna, sulpho-carbolate of sodium, ipecacuan or camphor.

The great encouragement we have in every case of cholera is this that the disease runs a definite and, generally, a short

course, and that if our patient can but be supported, whether by transfusion, aided or not by the powerful cardiac stimulation of hypodermic injections of ammonia or of digitaline, or by other means until the malady have run its race, the chances are all in favor of his ultimate recovery. I look further than this, for I by no means accept the dogma that we cannot arrest a specific febrile action. If we cannot it is from our ignorance alone, not from any element of impossibility in the diseased process itself. The normal course of variola has been arrested by vaccination, and if achieved in one case, why may it not be in all. The whole question of transfusion in cholera requires careful reconsideration, in the light, alike of new experiments, and of combination with local treatment.

Niemeyer, is a noncontagionist. "I do not believe" he says "in the contagiousness of cholera, as I have never seen a case where the disease has been communicated in that way:—I am, however, perfectly convinced that during a cholera epidemic the poison localises itself in particular towns, streets, or houses, and that the probability of being affected by the disease is so much the greater the nearer the persons live to the infected spots." "There are few houses in which, after there has been one case of cholera, others do not show themselves. I have seen in one small house, notwithstanding fumigation with chlorine, &c., as many as fifteen persons successively attacked."

On the point of communicability of cholera most of us will join issue with Dr. Niemeyer, though all must acknowledge that, under certain unknown conditions, that communicability seems to be reduced to a minimum. Some authors have denied, not only the contagiousness of cholera, but also the existence of any special constitution of the air during the presence of epidemic diseases generally. That such an epidemic constitution of the atmosphere, however, exists, is proved, *inter alia*, by the marked alteration which takes place in the health-state of the community as a whole during the presence of epidemic disease. This alteration is not merely observed in those who have suffered from the disease, whether in its milder or graver form, but notably also among those who have escaped actual attacks; it is proved also by the singular power which one epidemic has of resisting, more or less, the intrusion into its area of another, and by the curious

power certain epidemic influences have, not merely of offending off other epidemic disease, but also of suppressing, more or less entirely, the manifestation of common diseases, *as if diseases, regarded generally as non-specific, possessed some element of specificity which has hitherto escaped our recognition.* During the late epidemic of dengue the admissions to the General Hospital, from ordinary diseases fell considerably below their averages.

What the remote cause of cholera is, is, to this day, a mystery. Recent investigations seem to have given the death blow to the Microfungi and Bacteria theories. We are probably as near the solution of this mystery as our fathers, and not one step nearer. The proximate cause of the disease we shall never know but by its effects; for the *vera causa*, or the adjustment in the living body of the properties of the remote causes, has to do with vital forces, whose nature we know not, and whose reciprocal action is completely hidden from us. "Il est bon de comprendre qu'il y a des choses qui sont absolument incompréhensibles" says old Malebranche, and his humbling admission will hold good so long as the human mind attempts to wrestle with such problems as those of force, space, time, matter, will and life. The remote cause of Cholera, may, and probably will some day be discovered, but the next step in the inquiry must pass over the proximate cause, and see us engaged in the investigation of its earliest effects.

Neither in the blood nor in the evacuations can microscopists demonstrate the presence of any marked poison, but what the earlier changes are which that poison effects in the blood-mass enquirers like Drs. Lewis and Cunningham are helping us to understand. In the blood, but more especially in connection with the local lesion and transudations there appears to be an increase of active and prolific protoplasmic cells or particles—like pyoid or exudation cells,—which cells have a tendency to separate from the red blood corpuscles, and to accumulate in the smaller vessels and capillaries, as well as to appear largely in the dejections. The development of these elements is attended with a diminution in the normal coagulability of the blood. In some points, it is said, this process resembles that observed in pyæmia.

Earth, water, and the lower stratum of the atmosphere.

are full of morbid germs, which living creatures, under the operation of disease-producing conditions, have evolved and are daily evolving. These germs have definite forces, which are communicable, with more or less readiness, to the unstable physiological elements of living beings, which communication and increase we name contagion and multiplication of virus. Like generates like. From time to time new diseases, the manifestations of new communicable morbid forces, appear in the world, spread, vary in their features; decay, and disappear, to be succeeded by others which run the same course. Old diseases reappear from time to time. No two epidemics are identical in all their features. The more virulent poison-germs have a longer lifetime, probably, and greater migrating powers; they seem to retain their individuality more distinctly than others, but they too will disappear to make way for morbid germs of different powers. Medical men are alive to the fact that the study of normal germinal matter with its vital "dunamis" is the first step towards the comprehension of abnormal germinal matter with its morbid forces, and to the influence of causes in converting the normal into the abnormal. That a sperm cell should convey a specific virus like syphilis to the mother and infant, calls our attention to the minute work-shops of the living system, in which normal and abnormal forces are sustained and propagated. It is difficult to understand why some writers should refuse to recognize the development of new morbid forces, or the *genesis de novo* of morbid forces, whether old or new when they have daily before their eyes inflammations and fevers producing degraded germinal matter with communicable powers.

Restricting our remarks to cholera, what reasonable objection can be offered to the theory that the first case of the disease must have been a development, *de novo*, of a specific virus; that wherever the same cause, acting under the same conditions, is present, the same virus will appear as the effect; that the morbid force is propagated also by contagion, and that all those portions of the earth's surface in connection with which the disease has manifested itself, will, under favoring circumstances, become new centres of production, new endemic areas, as productive of evil, it may be, as the original locality in which the disease for the first time appeared, and from which it for the first time emerged. In accepting the possible *genesis de novo* of the virus,

in recognizing the propagation by contagion, and the constitution, as described, of new endemic areas, all the apparently discordant facts connected with the origin, spread and reappearance of the disease may be explained, without subjecting any known truths to the Procrustes' bed of more restricted theories.

Created by man, such diseases will be stamped out by man, when nations come to comprehend that the preservation of human life is a more glorious aim than its destruction.

ART. XI.—*On the effects of the use and abuse of Bazaar preparations of Indian Hemp.*

(Communicated by the Inspector General, I. M. D.)

(Continued from page 89.)

Effects of abuse of Indian hemp.

(c.) *On the mental faculties and nervous system.*—The general opinion of the reporters under this head is, that the abuse or excessive use of preparations of hemp does, in time, impair the intellect and nervous system generally. Persons addicted to the vice gradually exhibit more or less marked imbecility or vacuity of mind, they become careless or indifferent about their personal affairs and appearance, they are irritable and quarrelsome, and may have hallucinations or illusions that may render them dangerous under excitement. It would also appear that an overdose or succession of large doses may induce a state of excitement, having all the characteristics of acute mania, which may, last for some time or shortly cease on the withdrawal of the drug. A case of this nature, which took some time to recover, is reported by Asst. Surgeon Hackett (No. 15 in tabular statement.) Another recorded by Assistant Surgeon Boalth, (No. 13) recovered in three days. A very interesting and highly illustrative case is given by the Civil Surgeon, Cuddalore (No. 9 in tabular statement). A man whom he had daily seen for some time in the streets behaving as if suffering from acute mania, and a known ganjah smoker, was sent to jail for a petty theft. On admission he was emaciated, much depressed in mind and suffering from physical exhaustion. Of course no ganjah was allowed during his incarceration, and in a

week he recovered his mental and physical condition, and shortly became one of the most willing and best working convicts in the jail. Surgeon Croudace (No. 7) records a case of catalepsy produced by smoking a mixture of ganjah and tobacco. The cataleptic state lasted five days, and during this period "the limbs retained any position in which they were placed till moved again." Two of the reporters believe that the abuse of Indian hemp gives rise to organic changes in the cerebral structure, which seems highly probable.

d. *On general health.*—The most marked effects of the excessive use of hemp on the general health and appearance are emaciation, general debility, sunken cheeks, staring eyes, dark lips, and a tendency to diarrhoea or dysentery, which generally terminates fatally. Confirmed ganjah smokers are also subject to chronic bronchitis and other affections of the lungs, and Assistant Surgeon Moodeen Sheriff observes, that he has "seldom seen persons of this kind not coughing repeatedly while smoking or quite free from it at other times."

Influence of preparations of Hemp in exciting to violent crime.—The views recorded under this head by medical officers are somewhat conflictory, and as none of them appear to be based on a very extensive series of recorded facts, or personal observation, are not of much practical value. Surgeon H. Adam mentions that in the jail at Vizagapatam there are sixteen prisoners who confessed that they had been addicted to the use of hemp, but there is nothing definite to show that their crimes were the results of this habit, except in the case of one man whose intellect seems to have been impaired by indulgence in the drug. A case of petty theft which was committed at Cuddalore, while the delinquent was temporarily insane from the excessive use of ganjah, has been already noticed in para. 6. But one instance of violent crime, attributed to over indulgence in ganjah, has been recorded. This case, which is noted by Surgeon Major Brett, M.D., (No. 3 of tabular statement) was that of a havildar of the 35th Regiment, who shot the adjutant of the corps because he was disappointed in getting promotion, and then committed suicide to avoid punishment. This man was reported to have been under the influence of ganjah when he committed the crime. On the other hand the Surgeon in charge of the Madras Penitentiary states that there is nothing on the records of

that jail to show, that hemp preparations incite to criminal offences. From the evidence before me, therefore, it does not appear, that those addicted to the use of the bazaar preparations of cannabis are more apt to commit ordinary or violent crime, than those who exceed in the use of spirits or opium. The most that can be said is, that ganjah, &c., sometimes produce a species of maniacal excitement, and a person in this state may, of course, commit an act rendering him amenable to the law. Surgeon Adam says that in the cases that he has seen during the past five years, while in charge of a jail, the "crimes committed by those addicted to the use of preparations of hemp have had more of a predatory than of a violent character." But while the use of hemp does not appear to be a direct cause of violent crime, there seems some reason to suppose that men who meditate an offensive or violent act, which they would not have the courage to undertake in cool blood, sometimes nerve themselves for the occasion by taking a dose of ganjah. Thus hemp may occasionally be indirectly the cause of crime.

Influence of preparation of hemp in inducing insanity.—That the long continued or excessive use of these preparations is apt to induce insanity is very clearly shown by the returns in the Annual Report on the Bengal Asylums, for 1870. The total number treated in these institutions during the year was 1,147, and of these 316 cases, or 27·5 per cent, were the result of indulgence in ganjah or bhang. The statistics of the Madras Asylums do not admit of strict comparison with these figures, but of 302 admissions into this institution between the 1st January 1867 and the 31st December 1870 fourteen cases were reported to have been caused by the use of ganjah, but in eight of these the cause was doubtful as the evidence was only hearsay. But assuming that all the 14 cases were induced by the use of the drug, this would only give to the total admissions a per centage of 4·6. From this it would appear that ganjah smoking is much less frequently a cause of insanity in this than in the Northern Presidency, and it may also be inferred, that the vice is much less common amongst the people of Madras than amongst those of Bengal. Further evidence on the influence of the preparations of hemp in causing insanity will be found in column 7 of tabular statement.

Summary Tabular Statement of the Reports of Medical Officers on the effects of preparations of Indian Hemp.

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
1. Surgeon J. M. Joseph, M. D., 17th Regiment, N. I.	Continued use produces loss of nervous energy.	Continued use induces debility; and if a bhang consumer holds his arm in a perpendicular direction for 2 or 3 minutes, the pulse at wrist ceases.	.....	.....	Does not think that hemp consumers are more apt to commit crimes than those using largely other intoxicating drugs or spirits.	Has seen a few cases of mental derangement with violence caused by habitual use of bhang.
2. Surgeon J. Keess, M. D., Fort Surgeon, Madras.	Does not exert any prejudicial effect on the system, but on the contrary acts as a nerve stimulant, promoting cheerfulness, encouraging the appetite, inducing sleep, and removing languor. Considers it "a great tranquiliser of nervous system."	.....	Native soldiers using it in excess are generally spoken of by their officers as slow only.	.....	Has never been able to trace crime to habitual use of Indian hemp, and considers that from its calumative effects its use is calculated to lessen outbursts of wrath, hatred, revenge or discontent which so often precede crime.	

Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

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1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insani- ty.
	2 Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
3. Surgeon Major J. Brett, M. D., 35th Regiment, N. I.			Furious maniacal excitement some- times seen, but the character of the mania is dif- ferent from that of Delirium tre- mens; effects more allied to those of opium eating and smo- king than to those of abuse of alco- holic stimulants; most general ef- fects from vic- ious indulgence in hemp are imbe- cility, vacuity, paralysis owing no doubt to orga- nic changes in cerebral struc- ture.	Most general of abuse the 35th Regi- ment who have been in the few years ago; 35th Regiment 3 shot the Adjutant, because he was disappointed in getting pro- motion, and then committed sui- cide was a known Bhang eater and smoker.		

Effects of the use of

Funnel, F. R. C. S. Personal belief that
Hemp is injurious
and produces cer-
tain effects, but
has no practical
proof of it.

5. Assistant Sur-
geon Tyrell, Zil-
lah Surgeon,
Guntur.

Taken in large quantities made in the long run
deus its victims from its pernicious
and renders them ones and poisonous
reckless of all effects as in the
danger. Mahomed case of those who
dan lunatics when use opium.
intent on mischief
take it to enable
them to carry out
their dark designs.
Taken habitually
produces changes
of a serious nature
in the brain.

General impres-
sion from experi-
ence in District
Jail Shemogah,
Mysore, and the
Madras Peniten-
tiary is that its
inordinate use
by certain class-
es does promote
crime. When Act-
ing Chemical Ana-
lyst, Mysore, re-
members, that
Bhang was offered
as the excuse for
many cases of
murder.

Believes from what
he has seen and
heard that insani-
ty, temporary or
permanent, is in-
duced by Hemp.

use of Indian Hemp.

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Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1. Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2. Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
7. Surgeon T. Coudace, Zillah Surgeon, Masul- patam.			Saw once a case of catalepsy, lasting 5 days, during which limbs re- tained any posi- tion in which they were placed, pro- duced by smok- ing a mixture of gunjah and to- bacco. Seen no case of violent excitement.	.....		
8. Deputy Inspec- tor General W. H. S. Burn, F. R. C. S., Pegu Division.					The "Indut" That the inordi- nate and protracted use of hemp leads to confirmed insanity, under certain conditions, can scarcely admit of doubt. Of 116 cases of insanity in Aylum at Tan- goun, six were produced by hemp.	

Effects of the use and

abuse of Indian Hemp.

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9. Surgeon R. Wilson, M. D., Civil Surgeon, Cuddalore.	It is a very common custom amongst the bet- ter class of Hin- doos about Cudda- lore, to take a dose of majoun at bed- time as an aph- rodisiac.		Has daily for some time seen a native male (in column 6) addicted to hemp, and he appeared as if suffering from acute mania, be- ing noisy, dancing, shouting, &c. He also followed car- riages making hi- deous noises and gesticulations, but never offered per- sonal violence.	The prisoner (in A column 6) was on admission into jail, emaciated, much depressed in mind, and suffering from physical exhaus- tion. In a week he gradually re- covered his men- tal and physical condition, and is now one of the most willing and best working con- victs in jail. He of course got no relief from the hemp there.		Of 17 native mili- tary insanes trans- ferred to garrison Detail Hospital Rangoon during last five years 2 cases are returned as caused by use of hemp. From long experience with native troops be- lieves, that conti- nued use of hemp induces insanity.
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Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Facilities and nervous system.	3 General Health.	4 Mental Facilities and nervous system.	5 General Health.		
10. Surgeon H. Adam, Civil Sur- geon, Vizagapa- tam.					In the Jail at Vi- zapatnam, with some persuasion, 16 prisoners con- fessed that they had been addicted to the use of hemp. Of these 7 were convicted of theft, 3 for housebreak- ing, 2 for false evidence, 1 for a false charge, 1 for extortion, 1 mur- der, and 1 under trial for mischief. Of all these Asylum of persons the last is the only one showing men- tal impairment. In the cases which this observer has seen during past 5 years "the crimes commit- ted by those ad- dicted to the	In the last men- tioned prisoner in previous column the mental distur- bance is indicated "by uncontrol- lable will, a high "estimation of "himself, and "occasionally a "desire to argue "and declaim." Since 1865 there have been 12 ad- missions into the station Lunatic Asylum of persons addicted to the use of preparation of hemp. The symptoms in all these cases were seen during past 5 years "the crimes commit- ted by those ad- dicted to the

Effects of the use and

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"use of prepara- tions of hemp "have had more "of a predatory "than of a vio- "lent character."	"herence of "speech, illusions, "generally of a "pleasurable na- "ture, constantly "singing, espec- "ally at night, "laughing loud "and long with- "out any as- "signable cause, "unmeaning de- "clamation, at "other times sul- "len and faci- "turn for days, "and when thus, "indifferent to "food, habits filthy, "destructive of "property and "clothing, reut- "ing foul abuse "upon persons "generally ab- "sent, but never- "evincing ten- "dency towards "violence to indi- "viduals." Of above 12, six went out cured within 6 months, 3 died of dysentery or diarrhoea, and 3 remain in the asylum.
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Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in existing to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
11. Asst. Surgeon J. Smith, Offg. Superintendent Lunatic Asylum, Madras.	.....	.....	... ..	.....	Of the 14 cases (mentioned in column 7) only said to have been caused by blang, and in his lunatic, and in his case there was no evidence to show that the crime had been committed under the influence of blang, but he was said to be addicted to the use of the drug, and to have been insane for 5 years before committing the crime.	The number of cases of insanity, (column 7) only said to have been caused by blang, and in his case there was no evidence to show that the crime had been committed under the influence of blang, but he was said to be addicted to the use of the drug, and to have been insane for 5 years before committing the crime.
12. Honorary As- sistant Surgeon Noodeen Sheriff, Trippicane Dis- pensary.	One pie worth of gunjah is in Ma- dras sufficient to produce intoxication in 1 or 2 per- sons. The intoxica- tion following is	Gunjah is believed by the smokers to improve the ap- petite and keep the bowels regu- lar.	.....	From the prolonged or excessive use of gunjah the persons addicted to it get very thin with dark lips, depressed cheeks, during, prominent out and more or less excited eyes. The smoke of gunjah also lays the foundation of chronic bronchitis, it, being irritant. The reporter has rarely seen con- firmed smokers coughing repeat- edly while inhal- ing the smoke, or quite free from it at other times.	Gunjah smokers are notorious for their irritability and their quarrel- some disposition, and they have little control over their passions. Believes that these tenden- cies would render them liable to commit crime, but has no data from which to speak po- sitively.	There is a general notion amongst the natives of In- dia that the ex- cessive use of gunjah leads to insanity, but the reporter amongst the many cases he has seen can only recollect one, which could be traced to the use of the drug.
13. Asst. Surgeon W. H. Boalch, Left Wing 31st Regiment, N. I.	.....	.....	A sepoy, aged 21, who had been smoking gunjah for 10 years took an overdose, and became delirious. The delirium as- sumed a mis- chievous turn.	The health of the sepoy (column 4) did not appear to have suffered in the least from the use of the drug.		

Effects of the use and abuse of Indian Hemp.

Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3. General Health, &c.	4 Mental Faculties and nervous system.	5. General Health.		
14. Surgeon G. S. W. Ogg, M. D., 2nd Regiment M. N. I.			He broke his chatties and pots and threatened to commit suicide. He spoke rati- ally, but articula- tion was thick, he was rest- less face bargard, and complained of being troubled with apparitions. In three days after admission into hospital he was discharged well.	When used in ex- cess it appears to have a decidedly prejudicial effect on the general health, producing emaciation and general debility.		Two cases of insa- nity have come under the obser- ver's notice since taking charge of corps, and one of these men was said to have been addicted to the use of bhang.

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15. Assistant Sur- geon A. L. Hackett, 31st Regiment N. I.			A private aged 25 was admitted into hospital in a state of great excite- ment, which his friends said was brought on solely by excessive in- dulgence in gun- jah : eyes congest- ed, head hot, tongue coated, violent in his actions, calling out loudly and requiring at times two men to hold him. He recover- ed in 15 days, but was re-admitted in a month with similar symptoms and had to be put in a straight jacket. After being a month under treatment he became ex- cessively violent, screamed and ran about and burst the straight jack- et. In about an- other month he recovered and was sent to duty.			
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Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

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Effects of the use

1. Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
16. Alex. Thomas, Medical Officer, Kyouk Phoo.		The smokers of ganjah very com- monly suffer from dyspepsia. Their lungs also become affected, and they not unfrequently suffer from plithi- sis and hæmopto- sis. Palpitation is also a frequent complaint.	.....	.....	The reporter dur- ing a length- ened medical ser- vice has had frequent oppor- tunities of elici- ting from natives of Hindostan, sent over as life pri- soners, that much of their bloody work was under- taken while under the influence of Bhang or Ganjah.	
17. Surgeon G. Marr, M. D., Civil Surgeon, Moulmein.				Prolonged use of Ganjah induces emaciation and ultimately diarr- hoea and dysen- tery which termi- nate fatally.		

abuse of Indian Hemp.

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19. Sub-Asst. Sur- geon Dens Nath Doss, Akyab.	that hemp in me- dical doses pro- duced symptoms of a decidedly ma- niacal tendency.	Has found that some Ganjah smokers were very witty, and could be made to work better with- out grumbling than others who do not use it. During Durga Pu- ja holidays, the day the goddess is thrown into the river, "it is cus- tomary with all Hindus in Bon- gal, both males and females, to "drink Bhang, "being a ready "exciting cause "of merriment. "While under its "influence they "sing and fall "into repeated "fits of laughter, "which end in "profound sleep "without any bad "results worthy "of notice."	Carried to excess, Ganjah smoking produces dullness of intellect, and a carelessness re- garding the per- son's own inter- ests. It also makes the temper irritable.	Confirmed smok- ers of Ganjah ge- nerally die of dy- senteria.	
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this larger sum must be set the fact that, if he lives beyond *five* years, he must still continue his subscriptions, so increasing still further his payments to the Service Fund, while his subscriptions ceased with the *fifth* and last premium to the Assurance Company. To the former he is obliged to continue his monthly contributions as long as he lives: but with the fifth annual premium to the latter he will have paid *in full* all he has to pay for securing his thousand pounds. His income will then be relieved from any further deductions, unless indeed he desires to secure a second thousand pounds with the view of giving his widow £80 a year, and so placing her in a still better position than she would hold as the relict of an officer in class IV.

If, however, an Assistant Surgeon be unable to make such large payments to the Assurance Company, he may secure the same sum, Rupees *ten thousand*, by quarterly payments of Rupees *sixty-six annas ten and pice eight*, which will cease in *thirty* years, by which time he will have paid Rupees *eight thousand* for the Rupees *ten thousand* available to his estate. Looking further to the fact, that the sum, secured by the Assurance Company, forms a legacy to the subscriber's estate, and not only the security of a pension to his widow, this pension being contingent on his wife's surviving himself,—it becomes a nice question whether he better subscribe to the Assurance Company or the Service Fund. We are unprepared to decide the question for him, and must leave him to do this for himself. He best knows his own circumstances, and due consideration of these is essential to a right judgment in the matter. All we would urge is that he should weigh these facts well: all his payments to the Service Fund will be thrown away if his wife does not survive him,—and his *præmia* to the Assurance Company secure a certain sum, which he can leave

to whomsoever he will—either his wife, or his children, or any one else if he leave neither widow nor orphans.

The late Deputy Inspector General of Hospitals,
AMBROSE BLACKLOCK.

Long before this number of the Journal reaches our Subscribers, they will have heard of the death of Deputy Inspector-General Ambrose Blacklock, and, if personally unknown to him, will have learned from the obituary notices that have appeared in the local papers, how much he was esteemed both by his professional brethren and by the general public.

Ambrose Blacklock was the son of a retired medical officer of the Royal navy, who, we believe, is still alive. He was a native of Scotland and was born at Dumfries in 1816. After qualifying for the Diploma of the Royal College of Surgeons of Edinburgh and before coming to India, he published in 1838, a treatise on sheep which won for him the prize that had been offered for the best essay on this subject, by one of the agricultural societies. This early effort at authorship is a volume of two hundred and thirty-six pages, and had reached the twelfth edition in 1853. It embraces a variety of information most useful to the farmer and shepherd, and its scope may be gathered from the following headings of the chapters, "History of the Sheep, Wool, British Wool Trade, Improvement of the Breeds, Management of Sheep, Accidents and Operations, Diseases of Sheep." At the early age of twenty-two, he showed himself, by this work, to be a close and careful observer; and the author's practical tendency may be inferred from his own remark that "such points only as are of real importance have been

Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 Influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3 General Health.	4 Mental Faculties and nervous system.	5 General Health.		
22. Surgeon R. W. Cockerill, in Me- dical charge Pe- nitentiary, Ma- dras.	The records of this Jail do not show, that the prepara- tions of Indian hemp injuriously affect the general health or mental faculties, or in- cite to criminal offences.					

SHORTT'S VACCINATOR.

Fig 1.

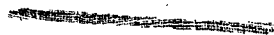


Fig 2.

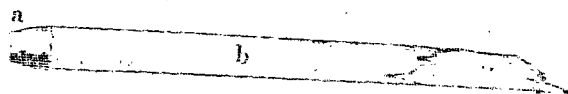


Fig 1. The four needles tied together for fixing into the handle.

Fig 2. The needles fixed and ready for use.

- a. Sealing-wax.
- b. The shaft of a quill.
- c. Needle-points.

ART. XII.—*A New Instrument for Vaccinating.* By SURGEON JOHN SHORTT, M. D., &c., Superintendent General of Vaccination.

I HAVE introduced the instrument exhibited in the accompanying drawing as a vaccinator for the purpose of vaccinating. It is the only instrument used throughout the whole Vaccinating department of the Madras Presidency during the last six years. This vaccinator consists of four common sewing needles No. 5 tied together and fixed roughly into the shaft of a quill with sealing wax, and the instrument is ready for use. The whole length of the needles are placed within the shaft, except the nearest points, of which about one or two lines only protrude beyond the wax that fastens them to the shaft, care being taken to see that the points are level and that they do not touch each other, no especial care is necessary to keep the points free, for when the needles are placed side by side and tied together, the difference of size in the body will prove sufficient to keep the points from touching each other—with this instrument the vaccine vesicle should be gently scratched so as to rupture the cells and let the lymph out, into which the points are dipped and the needles subsequently pricked into the skin of the arms of the subject required to be operated on. Care should be taken not to allow the needle points to touch the raw surface of the lymph supplying vesicle, as it will cause pain and make the child struggle and cry. This can be avoided by allowing the lymph to collect into a drop or by laying the needle points flat or horizontally on to the vesicle to coat them with lymph. By attending to these particulars vaccination can be carried on with the greatest ease and rapidity. In using preserved lymph, the lymph is either gently blown on to the part intended to be operated on and the part is then pricked with the needle, or, if economy of lymph be necessary, the tube lymph can be blown on to a plate of glass and the needle then be inserted in the lymph and pricked into the arms. The punctures caused by the needles do not bleed as a rule, and all that is seen at the part is a slight rising of the skin and there may be visible four minute blood points after a while. If the needle is well-dipped into the lymph only one insertion is necessary; but I find my vaccinators prick the part two or three times over, and when properly done the pain of the operation is so trifling that most children do not

cry nor even flinch from the operation. As a rule we make six distinct insertions, three on each arm, about half to one inch apart from each other; when the needle is dipped into the lymph the points are simply coated with it, and by the insertion of the needles the lymph is carried beneath the skin, and when withdrawn the resilient skin wipes the lymph clean off the points. Care should be taken to keep the needle points clean and prevent them from rusting; for this purpose we use a piece of woollen cloth steeped in oil with which the needles are cleaned after every operation. The only drawback to the use of these needles is, that after being in use for some time the needles become brittle and the points snap off. A similar instrument is used by the native women of the Domber, Corava, and other tribes to tattoo the skin with, and it is from seeing the instrument used for tattooing the thought struck me that the same might be used to vaccinate with. About the same time, my late assistant, Mr. Apothecary J. Sausman, who also having seen the native women tattoo with needles in the Northern or Kistna District, sent me a needle and suggested a trial. As a vaccinating instrument, I believe that these needles might be greatly improved by having them made expressly, and in that case they need not be quite so long as sewing needles are, and they might be placed into a good plain and cheap holder with a contrivance for receiving and holding needles—the holder might be made on the telescope principle to be drawn out or to be pushed up out of harm's way when not required for use. The advantages in the use of these needles are:—

1. Economy as to supplies of lymph; for as much lymph as will coat the points of the needles is only necessary for the success of the operation as such.
2. The operation giving less pain and causing no bleeding from the insertion, so as to cause alarm to mothers. It is advantageous also for the success of the operation as the lymph is not washed out of the punctures.
3. Indian mothers frequently take alarm at the sight of a sharp bright lancet, but do not notice the needles.
4. Economy as to cost of instrument. A lancet costs from one to two shillings, the needles cost about one anna or three half-pence each.
5. There is a possibility of children getting wounded with a sharp instrument as the lancet, as Indian children

struggle and shriek from fright after the first insertion is made. Such is not the case with the needles.

These are the advantages. Native vaccinators should be frequently inspected to see that their instruments are kept clean and in order, as they are liable to allow their needles to protrude too much and get rusty, and they will also use common coarse needles which cause more pain than is necessary for the operation.

As a rule we insist on six insertions in every case, and I believe this is quite in accordance with the best modern authorities to raise several vesicles for the better protection of the system by vaccination. Each insertion makes a distinct vesicle, and we do not find that six insertions cause more pain or give rise to greater constitutional symptoms than that caused by two, or four vesicles. In the male the insertions are made longitudinally thus: in the female a triangle is formed thus:—, this is simply done to prevent the marks being seen low down the arms of girls and with native children, when we have to deal with large numbers, it enables us to recognize the sexes at sight by the marks on their arms. We endeavour to visit most of our cases on the fifth day, and any insertions then found likely to fail has fresh vaccine lymph inserted into the part, and these vesicles show themselves on the 8th day, although they are very much smaller and the punctures look like little pimples only. The others are well formed and large; as a rule the vesicles raised by the needle vaccinator are large and well-formed. During the last six years 1,522,994 (on persons whose ages ranged from six weeks to fifty years) operations have been performed successfully with these needles, giving a percentage of 89.17 per cent to the number vaccinated; and, as far as my own personal experience extends, if the operation is properly conducted, the failure with the needle instrument is next to nothing. The percentage 89.17 is extremely good when considered that it is the work of a whole department, among whom are many bad and careless operators besides a number of recruits.

ON POTABLE WATERS.—PART II.

AFTER mastering all the details of what we may call the previous history of a water, we proceed to make a physical examination of it. This includes the use of the eye and the microscope, applied to the fresh water, and to a sample kept for two or three days in a warm bright place. The test by keeping is a very good one. If much vegetable matter was originally present in the water in solution numerous plants are likely to develop and become visible in the water after standing. So the development of numerous animalcules, or of a putrid smell would show that nitrogenous matter must have been present in the fresh solution. "Water that will not bear the test of standing will be in most cases rejected at once*." The colour, smell, and taste are all to be studied at this stage though it cannot be said that they tell us much. We now begin with the chemical analysis proper, and the first thing usually done is to take the reaction. This is done by the use of test paper. Acid waters are very rare, except in some manufacturing districts. Most Indian waters are alkaline to test paper, a result due, according to Mr. Nicholson, to neutralisation of the acid, which was used to give the red colour to the litmus, by earthy carbonates. A rapid qualitative analysis is now made, with or without previous concentration of some of the water by heat. This tells us what substances are and what are not present. It is unnecessary to mention the tests applied as they are to be found in all chemical text-books.

Having ascertained what impurities are present in the water we must now find out their quantity,

* Dr. Angus Smith.

or we must make a quantitative analysis. The total amount of the dissolved matters is estimated by taking a measured quantity of the water, evaporating it to dryness, and weighing the residue. There are some slight differences in the directions given by different chemists in describing this process, especially in regard to the temperature at which the residue should be dried. If the residue is now heated to dull redness, the organic matters will be consumed and the total mineral solids remain. Much may be learned as to the nature and quantity of the organic matters present during the process of ignition. Besides the organic matter, nitrates and some chlorides and carbonates may be partially or wholly decomposed or driven off during ignition, but the primary qualitative analysis will tell us what substances are present, and what precautions should be taken.

The next thing that is generally recommended to be done is to find the total and permanent hardness of the water. This process takes up very little time, is generally easy of performance, and usually gives results which are useful in themselves and in checking other results that may be afterwards obtained. Pure water, on the addition of a little soap, will readily form a lather when shaken up. What is called a hard water is one that will not form a lather under the same circumstances. The substances that make a water hard are salts of lime and salts of magnesia. They act in this way:—Soap is a compound of a fatty acid with potash or soda. When this compound is mixed with a solution containing a salt of lime or a salt of magnesia, double decomposition takes place: the fatty acid forms a light, curdy precipitate with the lime or magnesia, while the potash or soda of the soap remains in solution combined with the acid originally tied to the lime or magnesia. Nothing remains to make a lather. The

soap has been wasted, and more has to be added until all the lime or magnesia has been thrown down. As soon as this is done, the addition of a little more soap will give a lather just as with pure water. By the quantity of soap used we estimate the amount of these substances in the water. When lime only is present, its quantity is usually estimated pretty accurately in this way, but with magnesia it is different. When much of this substance is present the lather ultimately formed is quite different in appearance from that formed with pure water or water and lime only. In fact one ought to be able to tell at once, by the appearance of the lather, the presence of magnesia in any quantity, even without any preliminary qualitative test as a guide. Our opinion is that with great care a practised hand ought to estimate both the magnesian and lime salts pretty accurately by the soap test. We have considered the soap test somewhat fully, as its use in India has been characterised by a writer in this journal as "a grievous waste of time." Some salts of lime and magnesia are nearly insoluble in pure water, but are soluble to a considerable extent in water containing CO_2 gas. If a water containing these salts is boiled, the CO_2 is driven off and they are precipitated. On applying the soap test to this boiled water we get what is called the permanent hardness.

The actual quantity of each inorganic constituent in solution is either estimated by separation and weighing, or by volumetric analysis. The details of these processes would be out of place here.

Means of ascertaining the source, whether animal or vegetable, and the condition, whether fresh, ready to decompose, or actually breaking up, of the organic matter dissolved in waters, have been wanting till a comparatively recent period. Even yet more information is desired, but what we do

know is most valuable. In fact the principal consideration, with reference to a water intended for drinking is its freedom or otherwise from organic impurities, and their nature when present.

Generally speaking animal matters contain nitrogen, while vegetable matters do not. The sources of the organic matter may, therefore, be known if we can measure the quantity of nitrogen present. This we are fortunately now able to do by the beautiful process invented by Messrs Wanklyn and Chapman, in which all the nitrogen is separated and estimated in the form of ammonia. Any ammonia actually present in the water, whether free or combined, is first distilled and estimated; all the nitrogenised (so called albumenoid) matters are next converted into ammonia and other compounds free from nitrogen, and this ammonia is also distilled and estimated. Lastly, if any nitrogen still remains in the water in the form of nitrates or nitrites, it also is converted into ammonia and estimated. We do not think there is any known chemical process so delicate, and at the same time so easily worked as this one. It has been estimated that the amount of the albumenoid ammonia multiplied by ten gives the quantity of albumenoid material originally present. In this way, then, we find out the quantity of animal matter, but not the total quantity of organic matter, in our water. The total amount of animal and vegetable, or quaternary and ternary compounds is approximately estimated by means of the permanganate of potash or chameleon test. This also gives us some idea of the state in which the organic matter exists. Putrefying organic matter is greedy for oxygen: chameleon is ready to give up oxygen: when these two meet, the latter gives up its oxygen *rapidly* to the former and is decolorised. Fresh organic matter is much less ready to take up oxygen, and hence it decolorises the cha-

meleon *slowly*. By means of the permanganate of potash, then, we find out the total amount of organic matter present, and the proportions of it which are fresh and decomposing. It is calculated that the amount of oxygen abstracted from the permanganate, multiplied by eight, gives the total amount of organic matter. Writing on the Albumenoid Ammonia process, Mr. Nicholson, after remarking that the ammonia, multiplied by ten, gives the organic matter, and the oxygen, multiplied by eight, also gives the organic matter, goes on to state that "we should therefore expect that the amount of albumenoid ammonia present, and of oxygen consumed, should correspond very fairly when the two processes have been employed." He then compares a number of results obtained by Dr. Macnamara and others, and finds that they do not correspond, that the proportion of organic matter indicated by the oxygen used up is always greatly in excess of that indicated by the ammonia obtained. He, therefore, concludes that "the albumenoid ammonia process appears to be as unsatisfactory in results as it is objectionable in practice." We hope we have made it pretty clear that the two processes were never intended to correspond: that the one only indicates the nitrogenous matter, while the other indicates both nitrogenous and non-nitrogenous compounds. A water may consume abundance of oxygen and yet yield no ammonia. More recently Mr. Nicholson has published three series of experiments on the Albumenoid Ammonia process in which he utterly failed to work it. His solutions and apparatus appear to have been all right, and yet he could get no Albumenoid Ammonia. He, therefore, writes that "the published results of analysis made by this process side by side with the permanganate process, disclose grave discrepancies, and I am afraid that analysts are diffident in stating that the process is a mistake."

Mr. Nicholson's brother-analysts, who have published the results referred to, have shown diffidence in not calling upon Mr. Nicholson to withdraw his insinuation. We hope none of them have been discouraged from continuing to work the process through diffidence. They must have felt encouraged on reading, in a foot note, Mr. Nicholson's tardy confession that he was mistaken in utterly condemning the albumenoid process.

We repeat that this is the most delicate and at the same time the most valuable test we can apply to a water, and there is no real difficulty in its working.

Its delicacy is such that, if a water contains nitrogenous matter sufficient to yield only one part of ammonia for every hundred-millionth of the liquid, we can estimate it with tolerable certainty. Of its value we are equally satisfied. The quantity of inorganic matters that a potable water may contain is quite uncertain. Even the amount of organic ternary compounds may, so far as we know, be considerable. Messrs. Wanklyn and Chapman conclude that a good drinking water ought not to yield more than .08 parts per million of albumenoid ammonia, while Dr. Macnamara places the highest limit at .1, and a water yielding .2 per million he sets down as bad. The uncertainty with regard to inorganic matter is indicated by the fact that while some of the Cannanore drinking waters yield only 5 parts per 100,000 of total solids, and .001 of albumenoid ammonia, some drinking waters, in other stations, yield 60, 70, 80 and even 100 parts total solids, but only about the same small proportion of albumenoid ammonia. It is not to be supposed that these latter are so good for drinking as the former, but they must be used when better cannot be got, and they are apparently used with impunity.

THE NEW ARMY FUND.

THE *second* paragraph of the Governor-General's Order, instituting the Fund for widows and orphans of officers of the Indian Staff Corps and Medical and Ecclesiastical establishments, runs as follows:—

“Such pensions and compassionate allowances as are by Royal Warrant granted to the widows and families of British Military officers, are already granted from Indian revenues to the widows and families of Military officers in the service of the Government of India who are excluded from the advantages of the late Military and Medical Funds, and it is to be clearly understood that the Government of India does not intend, by these present supplementary regulations, to sanction any further expenditure for this object from the Indian revenues. On the other hand, the Government of India does not, of course, wish that the Indian revenues should, in any way, profit by the Regulations.”

It is, therefore, clear that the pensions and compassionate allowances, alluded to in the foregoing extract, are continued to the Service, and will be granted, in terms of the Royal Warrant, to the widows and families of British officers, in addition to the pensions offered by the New Fund. And we make special and prominent mention of this provision, because it virtually abrogates a very distinct disqualification of the Warrant in question, which declares a widow ineligible for pension if she “receive any other pension or allowance from the public, on account of her husband's Military services.” We wish other disqualifications of the Warrant had been similarly abrogated, for careful perusal of that Royal missive does not encourage us to hold out strong hopes to our brother officers that their families will profit by its provisions, or ever enter into the en-

joyment of the pittances which it offers. We quote for our readers' consideration the initial paragraph of the Warrant:—

“The pensions authorized by this Regulation cannot be claimed as a right—they are granted by Her Majesty as rewards for good and faithful Military service rendered by deceased officers. They are only to be conferred on persons deserving the bounty of the crown,—they are not to be granted to widows in wealthy circumstances, and are liable to be discontinued altogether, in case of any misconduct rendering the individuals receiving them unworthy of the Royal bounty.” What is to be considered “good and faithful Military service,” and what is to be deemed “deserving the bounty of the crown?” Again, what constitutes “wealthy circumstances,” according to the Warrant, in a widow? With restrictions, allowing so large a latitude for unfavourable interpretation, we fear that very few widows and orphans indeed will become recipients of these “compassionate allowances,” so that officers of all branches of the service can count with certainty upon no more for their families than the pensions they may themselves secure in the Fund which has just been opened for their benefit.

Let us now look at what this new Institution offers to the Indian Medical service.

Table I. classifies the several Ranks of the Army.

At any *one* time there can be but *one* officer in the *First Class*, and he is the Inspector General. His widow only will be entitled to £160 *per annum*.

In the *Second Class* all Deputy Inspectors General and Surgeon Majors are included, and their widows will obtain £130 *per annum* each.

Surgeons are included in the *Third Class*, and their widows will receive £100 *per annum*.

Assistant Surgeons, above *six* years' service, are

in class IV. to which £70 a year is allotted as a widow's pension.

And in the *fifth* and last class the widows of Assistant Surgeons of less than *six* year's service will receive £40 annually.

Table II. fixes the allowances for Orphans, according to their ages.

Equal pensions are given to the Orphan children of all classes alike, according to the age of the children, who will receive £10 a year up to the age of *six* years, £20 between the ages of *six* and *twelve*, and £30 from *twelve* to *twenty-one*. To female orphans, however, £45 a year will be given from the age of *twenty-one* for life or till marriage. It is specially provided that the orphan daughter of an officer, on becoming a widow, will not revert to her pension,—and this we deem a serious blot in the constitution of the Fund.

Table III. gives the donations to be paid by officers of the several classes on entering the service of the Indian Government married, or on marriage or re-marriage, and on promotion to a higher class;—while Table IV. shows how those donations are reduced or increased when the wife is younger than the husband by *twelve* years and upwards.

In Table V. we have the donations payable on the birth of a child, and on entering the service of Government for each child then living, by all classes alike.

Table VI. shows the monthly contribution of every officer according to his class, and it is noteworthy that unmarried officers and widowers must subscribe as well as those who are married. Thus, while a married officer in India of the *First* Class subscribes Rupees 50 *per mensem*, one unmarried or a widower must subscribe Rupees 25. In the *Fifth* Class the respective subscriptions are Rupees 10 and Rupees 4.

Table VII. gives the additional monthly contribution for each child living on the *first* day of the month, by all classes alike.

The pension of a male orphan is continued till the age of *twenty-one*, but his mother or guardian may, on his attaining *sixteen*, or any age thereafter, have the residue of his pension commuted into a single payment. Table VIII. gives the commuted values of such pensions.

While it is compulsory on all who enter the Service on and after the 1st January 1873, to provide pensions for their families in this Fund, it is optional with those who entered before that date to do so or not. The option of subscribing, however, is not unlimited as to time. Any officer, who fails to intimate his intention to make such provision before the 1st July 1873, will, after that date, be permitted to do so only on production of a Medical Certificate of sound bodily health. And, if an officer does not before the 1st July 1874 announce his intention to secure for his family the benefits of the Fund, he will not be allowed to join the Institution save under the special order of the Governor-General in Council.

There is no provision in these Regulations for a sick allowance to officers going home, and this we cannot but regret. Retaining a pleasant and grateful recollection of the material assistance given to Subscribers to the old Fund by its Sick-allowance Branch, we heartily wish that the younger members of our Department could count upon similar much-needed aid during their occasional sojournings at home on Medical Certificate. We observe, however, that an officer may, by a special contribution, provide passage money from India for his widow and orphans, and this is a highly favorable feature in the new Institution. The particular rules under which

this benefit can be secured have not been promulgated.

It may be useful to institute a comparison between the pensions of this new Service Fund and those of the Madras Widows' and Orphans' Fund on the one hand,—and between the sums paid to secure these pensions in the two institutions respectively.

There are *six* classes of pensions in the Madras Widows' Fund as follows:—

<i>First Class</i>	£ 72	<i>per annum.</i>
<i>Second do</i>	£ 50-8	"
<i>Third do</i>	£ 36	"
<i>Fourth do</i>	£ 21-12	"
<i>Fifth do</i>	£ 14-8	"
<i>Sixth do</i>	£ 7-4	"

The maximum available pension then in our local Institution is only £ 2 above the pension of Class IV. in the new Army Fund, and it will therefore be best to select these *two* classes, in making our comparison of the relative cost of securing a pension in the two Funds respectively.

In the Madras Widows' Fund, a *First Class* subscriber must pay a minimum of Rupees *six-hundred* before his widow will be entitled to any pension at all; and in the event of his dying immediately after that minimum has been paid, his widow will not receive more than £60 a year, or *five-sixths* of the pension of the class, until, by the accumulation of the remaining *sixth*, year by year, the sum of Rupees *two-thousand* has been received by the Fund. But in the new Service Fund a subscriber paying down a donation of Rupees *five hundred* at once, secures to his widow the pension of £70 *per annum*. The monthly subscription, however, is Rupees *ten* to the Madras Widows' Fund, and Rupees *twenty* to the Army Fund;—and, as the subscriber to the latter rises into a superior class, he has to pay a higher

donation and a higher monthly subscription also. It is, therefore, evident that a subscriber to the latter fund, dying within *six* years after he has joined it, secures his widow's pension at a more advantageous rate than a subscriber to the Madras Widows' and Orphans' Fund, although, after that term, the advantage begins to incline the other way, and in the long run, we suspect, the subscriber to the Madras Widows' Fund has the best of it. So also we believe that, for the larger pensions of the higher classes, the subscriber to the Army Fund pays proportionally higher for the advantages he secures than the subscriber to the Madras Widows' Fund.

But very recently the "Positive Government Security Life Assurance Company" has come upon the stage to compete with other institutions for the support of those who desire to be frugal, and to turn their frugality to the best account for the benefit of their families. The basis of this Company appears to be as secure as human foresight can make it, and to those who have the option of joining the new Fund it may be worth while to consider whether the Positive Life Assurance Company does not offer superior advantages to the Service Fund, and a better return for their money. An Assistant Surgeon at the age of *twenty-three* can secure by *five* annual payments of Rupees 95-7-4, a sum of Rupees *one thousand*, and with *ten* times that subscription Rupees *ten-thousand*, so that, in *five* years, he will have secured a sum of money which at *four per cent.*, will give his widow as much as she will get in Class V., of the new Service Fund. During those *five* years, he will have paid to the Service Fund Rupees *eight hundred and fifty*, while to the Positive Assurance Company he will have paid Rupees *four thousand seven hundred and seventy-three*, annas *fourteen* and pice *eight*. But against

Summary Tabular Statement of the Reports of Medical Officers, &c.—(continued.)

1 Reporters, No. 22.	Effects of moderate use on		Effects of abuse on		6 Influence in exciting to violent crime.	7 influence in pro- ducing insan- ity.
	2 Mental Faculties and nervous system.	3 General Health, &c.	4 Mental Faculties and nervous system.	5 General Health.		
20. Surgeon H. Griffith, Superintendent of Lunatic Asylum, Rangoon.	After five years experience in charge of a Jail in Central Province (but speaking from memory) does not think that the moderate use of hemp induces mental hebetude and premature old age.		Habitual abuse must, undoubtedly, permanently weaken the mental faculties.	Habitual abuse of the drug must undoubtedly ruin the health.	The precursory symptoms of insanity resulting from the abuse of Gunjah vary, but are generally as follows: patient strongly affected by every emotion or passion, becomes distrustful, is very fretful and irascible, subject to uneasiness which he cannot describe or account for, has a degree of fear and feels either little disposition or absolute incapacity to sleep. It is less likely to produce insanity in those who are gradually accus-	

Effects of the use

abuse of Indian Hemp.

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21. H. G. Paul, Civil Surgeon, Henzadah.	Gunjah smoking produces a pleasant kind of intoxication, and great mental cheerfulness. It makes the smoker active and energetic and keeps him in good spirits as long as the intoxication lasts. The appetite is also sharpened. The effects of a full dose last from 3½ to 4 hours.	The use of Gunjah or Bhang in the long run proves to be injurious to health.				of the drug. Mental derangement apt to follow the use of large doses at first, and in such cases there is a species of insanity closely resembling delirium tremens. The attack often succeeds excessive or prolonged indulgence, and the reporter has seen it ushered in by a fit of epilepsy.
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noticed: every thing having been rejected which could not admit of a practical application."

On the 8th February 1840, he received his commission as an Assistant Surgeon on the Madras Establishment, and landed at Madras on the 16th of June 1840. He served the usual probationary period with the Artillery at Saint Thomas' Mount, and, at that early period of his career, was known among the medical subordinates and soldiers, for those many estimable qualities which made him so popular in after-life.

In the early part of 1850, when in medical charge of the 23d Native Infantry, he embodied, in his Annual Medical Report, some remarks on the treatment of Intermittent fever with sulphur and phosphate of lime which the then Medical Board thought to be possessed of so much interest that they "requested Mr. Blacklock to give his views in detail of the mode of action of this medicine."

His communication was published in the Reports selected by the Medical Board, with the remark that "it was a most valuable and interesting paper, the reasoning is highly ingenious but the correctness of the data in some particulars would appear to be doubtful." The drift of Mr. Blacklock's observations may be gathered from his own remark that "the whole train of reasoning in the present paper is founded on observations which have led to the belief that loss of phosphates from disintegration of nervous tissue or their deficiency in the circulating fluid is a predisposing cause of fever." About this time, Mr. Blacklock became favorably known to the Medical Board as a lecturer on various professional subjects to the medical subordinates at Kamptee. His worth, both as a physician and a teacher, was known to Dr. Robert Davidson, then superintending Surgeon at that station.

When Dr. Davidson came down to Madras as

member of the Medical Board, he did not forget the promising doctor at Kamptee, and, on the occurrence of a vacancy at Madras in 1851, obtained for him appointment as Professor of Surgery and Surgeon of the General Hospital. During his incumbency of the chair of Surgery, he lectured gratuitously, for several sessions, on Military Surgery and Medical Jurisprudence. His lectures on the latter subject were characterized by a charming originality, which fascinated, instructed and amused his hearers. In 1858, he was appointed Professor of Medicine and Physician of the General Hospital. In this position, his original and powerful mind was much exercised with the various puzzling problems presented by the Science of Medicine. Among other things, he was led to believe that sulphur would prove to be the remedy for Cholera, and that the cause of this disease was inoperative in the case of those who had suffered from small-pox. His essay on this subject was favorably noticed by the English Medical Press. His ideas of the therapeutic value of the chloride of ammonium led him to use this drug in the treatment of abscesses, and his success was such that he afterwards employed the remedy extensively. In his practice at the General Hospital, he was no mere follower of routine. Although a great believer in the restorative powers of nature, as shewn by his often simply ordering nourishing food and stimulants for his sick, he did not undervalue those aids that medicine often affords. While glad to use remedies sanctioned by experience, he was, ever and anon, testing the effects of remedies, and as evidence to show how careful he was not to carry his experiments beyond the limits of safety, he was often known, in cases of doubt, to take certain medicines himself before he prescribed them to others. At this time, while he occasionally wrote articles on various medical subjects, he trusted principally to his teaching, at

the bed side, for the diffusion of those ideas which have, since then, borne fruit in the practice of those who had the rare fortune of receiving their early lessons from such a master.

In 1867, while on furlough to Europe, he vacated his appointment at the General Hospital and College by prolonging his leave beyond the prescribed period. His brother Professor and Principal of the College Doctor George Smith, thus summed up his estimate of Mr. Blacklock, in the Annual Report of the Medical College for 1866-67:—"Mr. Blacklock, who proceeded to England, on sick leave on the 29th August 1865, vacated his appointment as Professor of Medicine on the 28th April last. Mr. Blacklock's connection with the College has extended over sixteen years. He was the senior Professor. Thoughtful and original as a teacher and writer, kind and humane as a Physician, exercising his noble profession among the poor and wretched, urbane and obliging as a fellow-labourer in the great work of education, few medical men have left a name in Madras more respected and esteemed than that of Ambrose Blacklock."

Mr. Blacklock returned to Madras in 1868 much improved in health, and was appointed Garrison Surgeon of Cannanore. On 4th August 1870, he was promoted to the Office of Deputy Inspector General of the Presidency Circle and Northern Division. For the last two and a half years, he was engaged in making frequent inspections of the various hospitals under his supervision, and, we fear, overtaxed his energies in his zeal for the public service. He died of Enteritis, at Chittoor, while on a tour of inspection, on the 11th of February 1873, and was buried at that station. By the unanimous desire of his brother medical officers and in accordance with public feeling, his remains were brought down to Madras and were re-interred with every mark of

respect and amid many tokens of regret, in the London Mission Cemetery, at Pursewaukum, on the evening of Saturday, the 22nd February. His obsequies were attended by a very large number of mourners representing every walk of life and class of Society:—

We laid him down, beside his wife,
Now join'd in death, as once in life:
His wish was, by her side to rest
Until the awak'ning of the blest.

This sketch of Mr. Blacklock's professional career, would be incomplete without some allusion to the noble qualities of his mind and heart which secured for him the enduring friendship of many, the esteem and regard of his pupils and subordinates, and the love and gratitude of the sick and needy. The generous promptings of his own nature were influenced by a deep sense of religion which bade him do unto others as he would be done by. This happy combination of inclination and principle made him what he was known to be, throughout a long career of more than thirty-three years, the poor man's friend, the kind and attentive physician, the considerate superior and the liberal supporter of charitable institutions. His was the religion of daily life which bore fruit in kindness, gentleness, consideration for the feelings of others and charity. During his sixteen years' connection with the General Hospital, he was often known to present money, clothes and comforts to those who were leaving hospital, after they had been benefited by his skill, soothed by his kindness and care, and comforted by his tender sympathy.

To say that he was zealous in the performance of his duty would be quoting a hacknied phrase which has lost half its meaning. His was a warm and genuine interest in his patients' welfare and the force of his example alone was sufficient to stir up

all those below him to a right sense of their duty. Blacklock needed no medical code at his back to induce his subordinates to do their very best to carry out his orders. His kindness to them was proverbial and we have been told by one who knew him well, that he was in the habit of giving pecuniary aid to some of the most deserving, in days when they were so poorly remunerated.

His own cheerfulness was catching. When, in the course of his visits, he came across any one, whose face bore traces of worry or fatigue from over-work, the recital of some anecdote or of his personal experience, in his own humorous way, served to dispel anxiety and infuse fresh energy into those whose happiness it was to be associated with him. His death has left a blank wherever he was known, but the great example of his life we hope may not be lost. Few have done so much unostentatious good in their day and generation, and will be so much missed and regretted as

AMBROSE BLACKLOCK.

REVIEWS.

The Hand-book for Midwives. By HENRY FLY SMITH, B. A., M. A., Oxon. Published by Longmans, Green and Co. 1872, pp. 158.

THIS small but valuable manual is divided into four parts. The first treats of the Anatomical and Physiological description of the human body, and especially of the parts concerned in conception and childbirth. The anatomical description is given in very simple language; as many technical terms are avoided as is consistent with affording a good idea of the parts referred to. The general skeleton is described in the first chapter, and the pelvis, and the transverse and antero-posterior dimensions of this part form the subjects of the second chapter. The third chapter gives as full an account of the external and internal organs of generation, of puberty and of menstruation. The language employed is very simple and is well within the comprehension of those who may be deficient in education. The second part of the work then goes on to deal with "The Conditions of Pregnancy." In the chapters included under this part we find a full account of the pregnant state, the anatomy of the ovum, the after-birth and foetus, together with a description of the signs of pregnancy, twin pregnancy and extra-uterine foetation; the examination, both external and internal, of the uterus, and the general rules to be observed during pregnancy are here well laid down. Five chapters are included in this part. The two last deal with the subjects of hæmorrhage during pregnancy and the methods to be employed for its arrest; miscarriage, abortion, and placenta prævia, and the conditions which result from the death of the foetus in utero.

The third part of the work deals with labour, the presentation of the child in natural labour, the management of an ordinary case with the cautions held out as to the difficulties or irregularities which may occur during this time. A useful chapter is inserted here, in which are described the midwife's bag, and an account of what is usually necessary for all midwives to carry with them when in attendance upon a case of labour. After a full account given in very simple

and plain terms of the pains as naturally occurring, we come to the chapters which treat of extraordinary labours; the various presentations and the management of such cases with the methods of detecting such irregular presentation are herein given.

Part IV. is the most valuable of this work. In this we have the principles of nursing and more particularly nurse-work laid down. What has gone before in the preceding three portions is of importance and is necessary for midwives to be acquainted with, but in this fourth part we have what we consider to be an absolute necessity on the part of midwives, namely, a knowledge of the nursing and management of the lying-in after delivery. Of this the first chapter treats,—the arrangements in the room, the state of patient and what is to be observed in her, are points carefully noted, the after-pains, and what is to be done for their relief &c. Then in the next section follows what should be known about the breasts and suckling the infant, and the period when the patient might with safety leave her bed. In the second chapter the infant is handled; and here we find injunctions laid down with regard to the subject of feeding the young. The small ailments of new born infants, and what is to be done for their relief is next treated of. In the third chapter we have an account of the illness to be expected during the lying-in, and with this chapter the work is brought to an end.

We have been much pleased with this small work, and we would strongly recommend it to all those whose vocation is to attend confinements. As a class book and as a manual for the instruction of European midwives in any institution set apart for that purpose we would advocate its adoption. The subjects treated of are handled in such a manner, that while all abstruse questions and the more minute and intricate parts of the subject of Gynecology are avoided, enough information is given to the midwife to enable her to seek medical assistance when it is necessary. In our opinion this is an important point. Meddlesome midwifery by *midwives* is to be condemned. We venture to say that if this small work alone is sufficiently and carefully studied by midwives, there need be no apprehension in leaving cases of labour to their care. Numerous engravings, taken from various well known anatomical and obstetric works, are inserted to illustrate what is described and laid down in the text, and although pictures cannot fulfil the same objects as

are attained by actual observation of cases of labour, yet they aid very materially in rendering simple and intelligible what is written. In conclusion we would mention that if this work be adopted as a text-book in any of the institutions assigned for the lying-in of women in this country, certain additions and omissions must be made to render it suitable. The same holds good in the case of all text-books prepared in England, and which are used in this country in the schools of learning.

*Saint Bartholomew's Hospital Report, Volume VIII
for 1872.*

THIS report has been lying before us for some time, and we regret that our space prevents us from noticing, in the present number, as fully as we would wish, the various articles which possess more or less interest for medical readers. We hope, in a future number, to do justice to this representative volume of an old and honoured School of Medicine.

Mr. W. B. Kesteven's article "On the Morbid Histology of the Spinal Cord" occupies the first place. Its perusal shews us how much the present generation is indebted to the labours of Lockhart Clarke, who first taught us to make thin sections of the spinal cord and to render them transparent for microscopical examination.

About fifteen years ago, we knew no way of investigating minute changes in the structure of the nervous centres. Mr. Kesteven adopts Lockhart Clarke's method of dividing the cord into portions, an inch in length, and placing these in a solution of Chromic Acid, one to 300 of water. After three weeks, he changes the solution for one of the same strength. At the end of six or eight weeks, the cord is sufficiently hard to admit of being cut into thin sections, which are rendered transparent by being floated, for a few seconds, on spirits of turpentine. Glycerine may be used, in addition, if necessary.

Mr. Kesteven tells us that he does not believe in the existence of the "perivascular canals" of the brain and spinal cord, first described by Professor His of Berlin a few years ago, and generally accepted by English physicians as lymphatic vessels of the nervous system. They have been injected, with indigo, by Dr. Rutherford, the Professor

of Practical Physiology at Kings College; but then continuity with the lymphatic system has not been satisfactorily demonstrated. Mr. Kesteven thinks, that the so-called "perivascular canals" are due to the post-mortem contraction of vessels which leaves a space between them and the surrounding brain tissue, a view in which Dr. Lionel Beale concurs. Congestions of the cord are ascertained by microscopic examination, after the adoption of the means above described. In a case of death from hydrophobia, congestion of the vessels was "the only pathological condition noticed in the brain and spinal cord." In fatal cases of tetanus, paralysis and convulsions, extravasations of blood have been detected. Mr. Kesteven has never met with a case of anæmia of the cord associated with disease, although it is known that this state of the vessels can be produced "by electrical excitation of vaso-motor nerves." The question here arises is this:—if contraction of the spinal vessels can be induced by electrical excitation, how can we apply this means, when we diagnose congestion of the cord? Physiologists can perform the experiment, it is true, but is the physician able to employ electricity in such a way, as to rely upon it as a therapeutic agent in hyperæmia of the cord?

Fatty degeneration of the vessels of the cord can also be detected by the microscope, after the section has been rendered transparent by glycerine. Atrophy of nerve fibres ensues when the blood supply becomes insufficient from fatty degeneration of the vessels. Mr. Kesteven has also noticed atrophy of the nerve cells of the spinal cord in a case of wasting palsy. The perusal of Mr. Kesteven's paper satisfies us that much is to be learnt by a microscopic examination of the brain and spinal cord when death has resulted from disease in these centres. Our post-mortem examinations of these organs have hitherto, for the most part, been confined to observations with the unaided eye, and we do not wonder that, in so many cases, it has been reported that no pathological changes have been observed sufficient to account for the gravity of the symptoms during life. A new era of investigation is dawning on us, and we have no doubt but that the rising generation of medical men in this country will be willing and able to aid in inquiries requiring scientific knowledge and manipulative skill. Mr. Kesteven, although an old practitioner of about 36 years' standing, has enthusiastically taken up the subject of minute anatomy and pathology of the spinal cord.

Article IV, by Dr. Samuel J. Gee, treats of the urinary phosphates in Ague. When he was medical registrar to the hospital for sick children, he had an opportunity of analyzing the urine of two boys who had contracted intermittent fever by residing, for two years, in the Isle of Grain, an aguish spot at the mouth of the Thames. "The phosphoric acid followed a type of its own in its variations as to quantity at different periods of the paroxysm. At or soon after the first rise of temperature, the quantity of phosphoric acid began to fall below the standard of the apyretic period. This fall continued throughout the effervescence and reached its lowest point an hour or two after the acme. Then the quantity of phosphoric acid began to increase, so that, at the completion of defervescence, it was nearly twice or thrice the normal." We quote the above paragraph in full, as it might be interesting to those who are studying the subject of intermittent fever in this country.

Mr. Robt. Jalland contributes three surgical cases, one that of ligature of the common femoral artery in a boy who had been wounded accidentally by a scythe. The artery was tied in the upper part of Scarpa's triangle. The ligature came away on the 28th day and the boy made a good recovery. The second case was one of strangulated femoral hernia in a woman 52 years of age. Taxis being ineffectual, the "skin was incised, the sac reached, and the femoral ring enlarged. As the hernia could not even then be returned, the sac was opened and the adhesions between the bowel and sac were broken through by the finger-nail and director. The bowel was then returned. Strange to say, the bowels did not act for three weeks after the operation. The third case was that of a boy, 14 years old, in whom a stone marble, 4-10ths of an inch in diameter, had accidentally dropped into the trachea. Tracheotomy was performed and the marble was expelled during a fit of coughing. From 7 to 11-30 P. M. the marble remained in the trachea without producing any urgent symptoms; but after an interval of 4½ hours, the boy was almost asphyxiated, and the operation was, with difficulty, performed. The quiescence of foreign bodies in the air-passages for hours and days, is apt to mislead surgeons and to induce them to think that the foreign body has been either coughed up or swallowed. We shall continue this notice in our next number.

The Medical Record. A Review of Medicine Surgery &c.

WE have received the first number of this new medical serial, the object of which is "to keep pace by a weekly publication with the rapid strides of contemporaneous Medical Science in all parts of the world." The regular retrospect of a week must necessarily be easier than the retrospect of a month, and easier still than that of a year. It is easier to the persons making it and to the persons reading it, and we hail with much satisfaction every effort to render the acquisition of professional knowledge more facile to the large and hard-worked body of medical men. The appearance of this new claimant to professional support is, therefore, most welcome, and the names of those engaged to work for the *Record*, and carry out its plan, should be a pledge of the success of the new journal, both in its commercial and scientific aspects.

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MEDICAL MISCELLANY.

Pathology of Chronic Bright's Disease with Contracted Kidney, with Especial Reference to the theory of "Arterio-Capillary Fibrosis." By GEORGE JOHNSON, M.D., F.R.S., Physician to King's College Hospital.

THE author began by referring to his discovery of hypertrophy of the muscular walls of the minute arteries in cases of chronic Bright's disease, published in the 51st volume of the "Medico-Chirurgical Transactions." This result of a quarter of a century's careful observation is now called in question by Sir William Gull and Dr. Sutton, who, in the recently issued volume of the Transactions, propound doctrines of great novelty relating to the pathology of Bright's disease. They give a brief summary of their conclusions at pages 295-6. Dr. Johnson now proposed to inquire whether these conclusions are in accordance with pathological facts and with physiological principles.

To prove that hypertrophy of the heart is a consequence of "arterio-capillary fibrosis," and not of degeneration of the kidney, they refer to six cases in which it is said that the cardio-vascular changes were present, while the kidneys were healthy, or but little altered in structure. In each of these cases Dr. Johnson maintains that the hypertrophy of the heart was due, not to changes in the minute blood-vessels, but to other obvious causes. In one case (No. 7), æt. 42, there was emphysema of the lung and bronchitis; in one (Case 10), æt. 60, there was senile gangrene, and, of course, degeneration of the larger arteries; in one (Case 20), there was disease of the aortic valves; one patient, who was sixty-three years of age (Case 2), probably had senile degeneration of the arteries, and her kidneys weighed fifteen ounces; another (Case 3) was seventy-seven years of age; while in a sixth case, (No. 19), æt. 62, there was atheroma of the cerebral and probably of other arteries, his lungs were very emphysematous, and his kidneys weighed only eight ounces. It is assumed by Sir William Gull and Dr. Sutton that kidneys weighing as much as fifteen ounces and as little as eight ounces were alike free from disease.

Although it is maintained (pp. 289-90) that there is a constant relation between the "hyalin-fibroid" change in the vessels and hypertrophy of the heart, it is stated (p. 292) that in a few cases this change was seen in the vessels of the pia mater, unassociated with hypertrophy of the heart. The "hyalin-fibroid"

change is supposed to lessen the elasticity of the walls of the minute arteries so to impede the circulation, and to cause hypertrophy of the left ventricle (p. 290). Dr. Johnson maintains that in this explanation the elasticity of the larger arteries, which acts in aid of the heart as a propelling force, is confounded with the muscularity of the smaller arteries, which antagonises the heart. Degeneration of the muscular walls of the arterioles would involve, not an increase, but a decrease of resistance, and therefore would not explain the cardiac hypertrophy. It is stated by Gull and Sutton (p. 295) that thickening of the arterial walls is always associated with atrophy of the adjacent tissues. Yet they state (p. 287) that these arteries are thickened in the walls of the *hypertrophied* heart, and they are also thickened in the large white kidney.

Going on to discuss the nature of the "hyalin-fibroid" change, Dr. Johnson maintains that it is not an *ante-mortem* pathological change, but a *post-mortem* physical result of the distension of the fibrous tunic of the arteries by the mixture of glycerine and camphor water, in which all the specimens had been mounted before they were examined by the authors of this theory. He maintains that the appearance in question is never seen in vessels examined minutely after their removal from the body, or preserved in dilute spirit, or in a solution of salt of specific gravity 1030, while it is frequently, but not constantly, observed in specimens mounted in glycerine. Normal arteries from the pia mater mounted in these different fluids present a striking contrast; those in dilute spirit or in salt-and-water appearing quite normal, while those in glycerine are constantly thickened and hyaline.

The "hyalin-fibroid" appearance thus produced may be seen in vessels from subjects at the two extremes of infancy and old age, where death has resulted from diseases having no relation to Bright's disease, and quite unconnected with hypertrophy of the heart. Specimens are preserved from the pia mater of a woman, aged forty, who died of diabetes, and whose heart weighed only 6½ ounces; from another woman, aged forty, who had cancer of the ovary, the heart weighing eight ounces; from an infant aged, eleven months, who died from spasm of the glottis, the kidneys, heart, and all the viscera being quite healthy; and from a boy, aged fifteen, who died from typhoid fever, having been in good health until the attack of fever. There was no *post-mortem* evidence of disease except such as resulted from the fever. Arteries from the pia mater are preserved in three different fluids. Those in weak spirit and in salt and water (specific gravity 1030) appear quite normal, while those in glycerine and camphor water have their fibrous tunic much distended and extremely "hyaline."

The imbibition of fluid by the arterial tunics is a result of physical conditions. A fluid slightly acidulated rapidly passes in,

and distends the fibrous tunic, rendering it "hyaline;" then the neutralisation of the fluid of ammonia occasions a rapid shrinking of the tunica adventitia, which again assumes its normal fibrous appearance.

The physical conditions which favour the imbibition of the simple unacidulated mixture of glycerine and camphor water would be influenced by various circumstances, such as the mode of death, and the period after death at which the examination is made. It is incumbent on those who maintain that the appearances in question are the result of pathological processes to demonstrate them in vessels which have been unchanged by artificial agents. The glycerine renders the muscular structure in some vessels indistinct; and this has been described as atrophy of the muscular elements. In other vessels it separates the inner from the muscular coat; and this has been mistaken for thickening of the internal tunic of the artery. (See plate v., figs. 3 and 4, in the last volume of the Transactions.) The author denies that the capillaries are thickened; and maintains that arterioles in the pia mater distended by glycerine have been mistaken for capillaries. With regard to the changes in the kidney, their "hyalin-fibroid" character is denied by Dr. Johnson; and reference is made to a paper by Mr. Simon, and another by Dr. Johnson in the thirtieth volume of the Transactions. Referring to fig 7, plate vi., in the paper by Gull and Sutton, Johnson declares that they ignore the fact that, in the renal arteries, there is an inner longitudinal, and an outer circular, layer of muscular fibres; and in a transverse section of such an artery they mistake the outer "circular layer for the analogue, in position and structure, of the "hyalin-fibroid" condition of the fibrous tissue of the arteries of the pia mater. They deny the existence of muscular hypertrophy yet some of their own specimens and drawings exhibited at the *conversazione* of the Society in June were good examples of hypertrophy of the muscular walls of the arteries. Reference is made to a footnote at p. 277 of their paper, in which a doubt is expressed as to the possibility of casts escaping from the convoluted tubules of the cortex (a). Dr. Johnson maintained that in the microscopic appearances of some forms of tubercles we have abundant evidence of their origin in, and their escape from, the convoluted tubes. The more frequent occurrence of hypertrophy of the heart in connexion with the contracted than with the large white kidney he explains partly by the more watery blood in the latter cases exciting less contraction of the arterioles, and partly by the occurrence of waxy or lardaceous degeneration of the minute arteries, which thereby have their contractile and resisting power impaired. To doubt the causative connexion between contracted kidney and hypertrophy of the heart because they are not constantly associated would be as unreasonable as to deny that a large white kidney is a cause of dropsy because

dropsy is sometimes absent. The author disputes the statement that the morbid changes in cases of contracted kidney "are the result of causes not yet ascertained." The most common causes are excess of food and of stimulants, with or without decided gouty symptoms, but he has seen many cases in which the disease has been a result of chronic dyspepsia in persons of strictly temperate habits. The proximate cause of the renal degeneration is the excretion of abnormal products by the gland-cells. This applies to all forms of Bright's disease, whether acute or chronic. The term "arterio-capillary fibrosis" is a misnomer, for the capillaries, except the Malpighian capillaries, are unchanged, and there is no "fibrosis" of the arteries.

The author concludes by thanking Sir William Gull and Dr. Sutton for having so forcibly directed attention to the cardiovascular changes in chronic Bright's disease. Differing entirely in their pathology, they agree in thinking the subject one of great interest and importance.—*The Medical Press*.

Anæsthetics in Midwifery.

As the use of anæsthetics is just now exciting so much attention, the following summary of an interesting paper upon their employment in obstetrical practice, by Dr. Dougan Clark, in the *American Journal of Medical Sciences*, will be found interesting:

"1. In perfectly normal labours of moderate suffering and duration, and without untoward symptoms of any kind, anæsthetics should not be resorted to.

"2. If the pains, even in an otherwise normal labour, be inordinate and protracted, especially in the second stage, anæsthetics are indicated.

"3. Irregular pains, exhaustive in their character, and inefficient, may be tranquillized by anæsthesia, and afterward the action of the uterus is, as a rule, more regular and efficient.

"4. Threatened convulsions may be averted, and those existing may be terminated, by a judicious use of anæsthetics. In cases of eclampsia, however, with congestion of the brain, or organic disease of that organ from any source, they are contra-indicated.

"5. Anæsthesia is proper in all obstetrical operations, whether manual or instrumental. It is useful in eversion, embryotomy, and the use of the forceps, and indispensable in Cæsarean section.

"6. Anæsthetics are among the most reliable means of overcoming rigidity of the perineum, so uteri, or vagina, especially when depending upon muscular excitement.

"7. Chloroform or ether may be employed for anæsthesia, of which chloroform is the most convenient, agreeable and efficient, but ether in midwifery, as in surgery, is the most safe.

"8. Chloroform is much less dangerous in midwifery than in surgery, so far as past experience can determine.

"9. It is not necessary, as a rule, to bring about complete insensibility, but only sufficient to obtund the severity of the pains. The exceptions to this rule will readily suggest themselves to a thinking mind."

*Clarke and Amory on the Bromides of Potassium and of Ammonium.**

THE authors remark that bromides are readily absorbed by mucous membranes. This has been shown to be true by Voisin, Enlenberg, Laborde, Damourette, Pelvet, Zæpfel, Bowditch, and others. To prove that the mucous membrane of the mouth absorbs bromide of potassium, Dr. Amory details two experiments, and mentions several others. After tying the œsophagus of an etherised dog, he injected into the mouth a solution containing 160 grains of bromide of potassium. In ten minutes, blood drawn from the carotid was tested by chlorinated water† and bisulphide of carbon, and was proved to contain bromine. In another instance a strong solution of bromide of potassium was retained for five minutes in the mouth, which was then thoroughly rinsed out and wiped dry. Urine, passed two hours and a half afterwards, contained a large quantity of bromine. After the administration, *per rectum*, of a beef-tea injection, containing an ordinary dose of bromide of potassium, the urine passed during the next few hours contained a salt of bromine. Dr. Amory also gives details of three experiments showing that bromide of potassium is readily absorbed by the stomach. Dr. Clarke asserts that the empty stomach probably absorbs a moderate dose in half-an-hour, but that an irritated or inflamed stomach absorbs much less readily, and may reject this medicine, especially if it be administered in a concentrated solution.

Dr. Amory demonstrates by four experiments that the skin does not absorb any bromide of potassium from a warm or hot solution (96° to 108° Fah.), but that it does absorb a small quantity dissolved in a cold solution (70° Fah.)

The whole body was immersed in a general warm bath on two occasions, for fifteen and ten minutes respectively; one bath containing an ounce and a half, the other ten ounces of bromide of potassium. The urine passed for several hours afterwards, though carefully examined, gave no traces of bromine. On two

* An Abstract of the Physiological and Therapeutical Action of the Bromide of Potassium and the Bromide of Ammonium. By Dr. Edward H. Clarke and Dr. Robert Amory. Boston: James Campbell. 1872.

† In testing for bromides, Amory generally adopts the method employed by M. Rabuteau (*Gazette Hebdomadaire*, April 24 1863).

other occasions the feet only were immersed in a cold (70° Fah.) solution of bromide of potassium, for eighteen and ten minutes respectively. One bath contained two drachms of the salt to five gallons of water; the strength of the other is not mentioned. The urine of the following few hours gave decided evidences of bromine.

The bromides are chiefly eliminated by the kidneys, and to a very small extent by the skin. Thus, after a forty-grain dose, Dr. Amory entered the hot chamber of the Turkish bath and collected four ounces and a half of sweat. This contained one-third of a grain of bromide of potassium. This skin-elimination continues more than one day; for, thirty hours after an eighteen-grain dose of bromide of potassium, he collected in the Turkish bath five ounces of sweat, which 'showed the presence of a large amount of bromide.'

M. Rabuteau says that bromide of potassium may be detected in the urine and saliva twenty days after the administration of fifteen grains. Dr. Amory could detect it only forty-eight or fifty-two hours after a single dose, but for a much longer time after the drug had been taken several days. Elimination by the urine is less rapid than absorption by the stomach. Traces appear in the urine in ten minutes (Rabuteau, *Société de Biologie*, July 1868). Elimination is most active during the first eight or ten hours, and in less than twenty-four hours the greater part is separated from the system, the quantity in the urine becoming daily less.

Dr. Clarke thinks that the acids of the stomach may decompose bromides, the liberated bromine irritating the stomach. Dr. Amory, however, denies this decomposition. Hence Dr. Clarke concludes that bromides should be taken on an empty stomach; and, as they irritate the stomach if too concentrated, he recommends free dilution (one grain to an ounce of water); or to the bromide solution an alkali, such as carbonate of soda or ammonia, may be added. According to Dr. Brown-Séquard's recommendation, bromides must be given cautiously if the stomach be irritated or inflamed. [These and some other statements lead one to conclude that Dr. Clarke is unduly influenced by theory, for these remedies are constantly administered during digestion, when the contents of the stomach are acid, without any signs of irritation. Thus the quantity decomposed must be insignificant, and even this, immediately on entering the blood, must become converted into a bromide. Nor are these salts generally diluted to the extent which Dr. Clarke recommends, and yet they do not irritate the stomach.]

Dr. Clarke refers to Dr. Hammond's observations on 'Sleep and its Derangement,' showing that sleep is due to a diminution of the quantity of blood in the brain, a too great diminution has, however, the very opposite effect, and causes wakefulness. The

experiments of Brown-Séquard (*Nouveau Dictionnaire de Médecine et de Chirurgie pratiques*. Art. Asthma by Sée), Menriot (*L'Etude de la Belladonna*), and Amory, show that bromides contract all the blood-vessels, producing anæmia of the brain and spinal cord, and hence diminishing the irritability (excitability) of these organs. This contraction of the blood-vessels is probably owing to the action of bromide of potassium on the vaso-motor nervous system, as the following experiments render probable. The six toes of both hind feet of a frog were quickly cut off; and during the following two minutes, there flowed eight drops of blood from the right leg and nine from the left. Another frog, after being poisoned by bromide of potassium, was treated in the same way; but during the two minutes after amputation, only two drops flowed from the right leg. The left sciatic plexus was then divided (thereby cutting off nervous communication between the limb and the vaso-motor centres), and in two minutes ten drops flowed from the left leg.

Under the influence of bromide of potassium, animals suffer from decided diminution of reflex irritability. M. Laborde has shown this (*Archives de Physiologie*, 1868). He applied bromide of potassium to the web of a frog's foot, and in twenty minutes after its absorption reflex irritability ceased, first in the posterior extremities. This diminution of reflex irritability is not due to the action of bromides on the muscular tissue, as the muscles of a frog poisoned by bromide of potassium contract energetically on the direct application of electricity. Nor is it due to the action of the drug on the motor nerves; for, after poisoning a frog and tying a ligature tightly round a nerve, electricity applied beyond the ligature excites muscular action, but, when applied to the proximate side of the ligature no reflex action is induced. This shows that the diminution or abolition of reflex action is owing to the influence of bromide of potassium on the cord. This influence, as we have said, some observers consider to be excited first on the vaso-motor centres, causing diminished supply of blood to the cord. Dr. Amory, however, thinks that the diminution of reflex irritability is partly due to lessening of sensation of the sensory nerves, also caused by a diminished supply of blood to these parts.

Dr. Clarke attributes the therapeutic action of bromides to their lessening the supply of blood to the brain and cord, through their influence on the vaso-motor nerves. The hypnotic effects he, in common with many others, considers due to the anæmia of the brain which they produce. Too much anæmia is followed by wakefulness, whilst less produces sleep. In this way he explains the different effects of bromide of potassium on himself. After unusual mental and physical fatigue (which he asserts causes anæmia of the brain), forty or fifty grains of bromide of potassium increasing the anæmia, caused sleeplessness, but soothed and

quieted him. When he was only wakeful from an ordinary amount of mental work (where there is hyperamia of the brain) the same dose produced sound and refreshing sleep. Given when the brain receives only an usual amount of blood, it produces unusually profound sleep. Voisin, referring to his patients in the Bicetre, says, 'The hypnotic action was very remarkable upon them, both night and day. Some were obliged to sleep for a few minutes at a time in the midst of their work. None, in spite of whatever efforts they made to the contrary, could resist sleep directly after their evening meal. During the night their sleep was calm, and in the morning it was difficult to arouse them.' (*Bulletin General de Thérapeutique*, tom. lxxi., 1866, Dr. Clarke recommends that the bromides should only be given when sleeplessness is due to an excess of blood on the brain, and should be withheld when it is due to an anæmia, food and stimulants being then required. Unfortunately, he does not tell us how we can learn the condition of the brain; and he confesses that in some cases bromides given with stimulants act better than stimulants alone. The usual hypnotic dose is thirty grains; less than twenty grains rarely succeeds, unless with persons unusually susceptible to the effects of this drug. Where the usual hypnotic dose is insufficient, Dr. Clarke finds, like Dr. Begbie, that it is better to give ten grains in the morning, and again at noon, and twenty grains at bed-time. Dr. Clarke recommends the hypnotic dose at night in the insomnia accompanying mental anxiety, excessive intellectual labour, hysteria, pregnancy, teething, the exanthemata, simple and typhoid fever, erysipelas, rheumatism, and a sort of hyperæsthesia, which I know not how to describe by any other name than general 'nervous irritability';* but for nervous irritability, whether due to overwork or to disease, he recommends a moderate dose (10 grains) repeated several times daily. Many observers employ these salts in teething, maintaining that they remove irritability and restlessness while they lessen the danger of convulsions. Dr. Clarke narrates a case of acute rheumatism, where during convalescence he discontinued the bromide, but next day the patient's wife asked, 'Why did you leave that medicine off? my husband was so good-natured while he took it.' This soothing effect renders it very useful in hysteria, preventing the outbreaks. These salts cannot produce sleep if there be much pain, but they are useful in removing the restlessness and sleeplessness sometimes left after pain. Dr. Clarke endorses Dr. DaCosta's statements (*American Journal of the Medical Sciences*, April, 1871) that bromide of potassium, in doses of 30, 40 or 50 grains, given three or four hours before opium (which first

* A condition admirably treated by five grains of hydrate of chloral three times daily.

increases but afterwards lessens the supply of blood to the brain), increases its anodyne effects, and often prevents excitement, nausea, and faintness. The nausea occurring on awaking after a dose of opium may be relieved by a dose of bromide taken as soon as the nausea begins.—*The Medical Record*.

Action of Digitalin on Circulation and Temperature.

Ackermann (*Deutsches Archiv für Klinische Medicin*, vol. xi., p. 125) has come to the following conclusions regarding the action of digitalin. I.—Immediately after the injection of a large dose of digitalin (0.05 gramme) into the veins, the pulse is rendered very slow. This is succeeded generally suddenly by great acceleration. Then follows a second stage of slowness, usually accompanied by irregularity, gradual cessation of the cardiac contractions, and finally complete loss of the irritability of the heart. The primary slowness of the pulse is due to stimulation of the vagi, for it does not occur when these nerves have been previously paralysed by the injection of atropia. The stimulation of the vagi is caused by the direct action of the digitalin on their roots, and not to increased blood-pressure as supposed by A. B. Meyer. The acceleration is due, at least partly, to paralysis of the inhibitory nervous system in the heart, for the strongest irritation of the vagus has no power to slow the pulse so long as the acceleration continues. It may also be partly due to stimulation of the accelerating nerves, as injection of digitalin after paralysis of the vagus by atropia increases the pulse-rate. The secondary slowness is not due to irritation of the vagus, for it remains completely paralysed during this period also. It is probably caused by paralysis of the muscular substance of the heart.

II. Larger doses of digitalin produce a great increase of blood-pressure in the arteries. This is due, partly at least, and possibly entirely, to the contraction of a large number of arterioles. This increase in pressure is not dependent on the action of the drug on the vaso-motor centre in the medulla oblongata, for it occurs when the spinal cord is divided between the occiput and atlas, or opposite the axis, before the injection of digitalin. Digitalin thus appears to have a direct action on the fibres of the vaso-motor nerves, or their ends in the vessels. The arteries in the mesentery of the rabbit may be seen to contract when digitalin is injected into the jugular vein, even after the spinal cord has been divided. This contraction may be so great as to obliterate the lumen of the vessel, and to this the increased pressure is due. It is not probable that the heart takes any part in increasing the pressure, as both increase and diminution of pressure may coincide with the most various rates of the pulse and force of the cardiac contractions.

III. At the same time that the blood-pressure rises after the

injection of digitalin, the temperature in the interior of the body (measured in the vena cava) falls, and that of the surface (taken between the toes) rises. It may be assumed that this change of temperature depends on some alteration in the circulation connected with the increased blood-pressure. This alteration consists in an accelerated circulation of the blood through the skin, so that the surface of the body is warmed and the interior cooled. It is possible that the lowering of the temperature in fever which digitalis produces, is effected in the same way, but this is uncertain.

In the *Journal of Anatomy and Physiology*, November, 1872, p. 134, A. B. Meyer and the reporter bring forward a new proof that digitalin induces contraction of the arterioles. This is obtained by a consideration of the form of the pulse-wave before and after injection of the drug. In common with other observers, they find that the blood-pressure rises after injection. At the same time, the height of each pulse-wave becomes less, and its descent during diastole more gradual. This gradual descent can only be due to contraction of the arterioles, for otherwise the rise in pressure would render the descent more abrupt. The slowness of the pulse appears to be partly due to stimulation of the vagus by increased blood-pressure, for acceleration occurs when the pressure is diminished by the inhalation of nitrite of amyl. Digitalin seems to act on the vessels directly, as those in the rabbit's ear empty themselves more rapidly after its injection. [The enormous increase in the blood-pressure which was observed by Blake (*Edin. Med. Journ.*, 1839), after injection of digitalis in the aorta, is most readily explained by supposing the drug to have caused the arterioles to contract before it reached the medulla, heart, and pulmonary vessels. Ackermann's conclusion that stimulation of the vagus and slowness of the pulse are not due to increased blood-pressure, was arrived at by the reporter nearly seven years ago (*On the Action of Digitalis*, p. 21). He now considers, however, that digitalin has a direct action on the vagus-roots, and sometimes slows the pulse in this way even when the blood-pressure is low, but that there is no necessity for denying to the increased blood-pressure produced by digitalin that effect on the vagus-roots which it possesses when arising from other causes.]—*The Medical Record*.

On Junod's Boot as a remedy in some forms of Amenorrhœa. By E. GARRETT-ANDERSON, M. D.

THE difficulty often found in restoring the menstrual flow when it has been suddenly suppressed by cold or nervous shock is sufficiently well known to render it needless to apologise for mentioning a new or unfamiliar remedy. It is notorious that all

drugs supposed to be emmenagogue in character are apt to fail when but for the absence of the catamenia the patient would appear healthy. The most trustworthy of the group, iron, probably fails far more often than it succeeds, when given in the absence of symptoms of anæmia, and as a rule anæmic symptoms are not present when menstruation has been suddenly and as it were violently suppressed. These are, moreover, precisely the cases in which remedial measures are most urgently needed. In the more common forms of amenorrhœa, where the condition appears to depend upon immaturity, change of air, anæmia, phthisis, or general debility, the suffering directly due to the absence or irregularity of the menstrual loss is generally very slight, and the remedies, when any are needed, can be allowed to act slowly. In the sudden suppression of menstruation from cold or nervous shock, the case is very different. All the symptoms are urgent. The headache is violent, the face is flushed, the eyes congested, the pain in the back severe and the general excitement great. The physician who might treat this condition on the expectant method would probably have few opportunities of doing so twice on the same patient. But the remedies at disposal are lamentably uncertain. Several of the best on the list, such as hot hip and foot baths, mustard baths, hot whiskey toddy, hot bottles to the feet, pennyroyal tea, and colocynth pills, are usually applied without medical advice. The external application of leeches, though less uncertain than most remedies of its class, often fails. Leeches applied internally, nitrate of silver to the os and cervix uteri, galvanic intra-uterine pessaries, and other direct stimulants to the interior of the uterine cavity, are inadmissible in the case of young unmarried women, for whom even stimulating vaginal injections would be ordered with considerable reluctance.

It is in cases of this kind, where the more ordinary and semi-domestic remedies have failed, where the distress from cerebral congestion is great, and where the suppression of menstruation has been sudden and has appeared to be due to some external or non-constitutional cause, that Junod's apparatus appears to me to promise to be of use, either as a palliative or as a cure. Essentially it is a dry-cupping on a large scale. The leg is enclosed in an air-tight case, and the air exhausted over it. The result is, that for the time the capillaries and vessels of the leg enlarge, more blood remains in the limb, and the circulation in other parts is proportionately relieved. It has the great merits of not interfering with other treatment, of being quite painless and so easily regulated as to be practically harmless, and of being applicable to young girls. I have tried it in two cases, and in each the return of the menstrual flow appeared to be the result.

In both cases the suppression dated from a violent chill during the catamenial period. In the first, the menstrual molimen was not very severe, but there was more or less constant headache

and great depression and restlessness. There was no anæmia and all ordinary remedies had been skilfully and actively applied under medical advice for some months before I saw the patient. The first remedy I tried was faradisation, placing one pole over the lumbar vertebræ, and varying the position of the other over the ovarian and uterine regions. I also extemporised an arrangement by which it was possible to supply the poles directly to the vaginal surface of the cervix uteri without using a speculum. After each application the patient said she felt for some hours as if the loss would shortly begin, but we were always disappointed. My patience failed after about six or eight trials, and I resolved to see the effect of Junod's boot at the next monthly period. After it had been applied twice, each time for about forty minutes, the flow appeared, and it has since returned regularly. Even after the first application the headache was relieved, and the general aspect of the patient unmistakably improved.

The second case was marked by much greater urgency in the symptoms. The suppression had occurred suddenly two months before I was consulted, and both at the time of the suppression and during the next succeeding period of menses all the usual remedies had, I was told, been actively applied by the family doctor in the country. When I saw the patient the headache was severe, the skin hot, and the pulse quick and feverish. Very hot sitz baths, with cold lotions to the head, a small blister to the neck, and two leeches on the thighs, relieved the headache but did not bring on the flow. The next day, faradisation and an ammoniated vaginal injection and more hot baths were tried, without effect. Two days afterwards the headache returned to an intense degree. I then applied Junod's boot; and while it was on, the face became less flushed, the dull, pained, oppressed expression lightened, and the patient declared herself better. The application lasted forty-five minutes. The leg was considerably swollen at its close, but the patient comparatively comfortable. The catamenia appeared the same evening. It is of course impossible to say how much, if any, of these results was due to the cupping process.

It is quite possible that the credit ought to be given to some one of the other remedies, or to all of them, or to none. Where the suffering of the patient is urgent, the desire to remove it naturally outweighs any leaning one would otherwise feel towards making a trustworthy therapeutical experiment.—*The Practitioner.*

Anatomy and Physiology.

V. *Paths of conduction in the spinal cord.*—M. Schiff had already found that the posterior columns conduct only the impressions of touch (*Tastempfindungen*), but not those of pain or

pressure; a fact which agrees with the pathological conditions of loss of tactile sensation and retention of the sensibility to pain. Hence, when the cord is severed, so that only the posterior columns remain, the sense of touch alone remains. Schiff, by a new method of operation, which is not followed by fatal results, found that, after section of the posterior columns, or of one of these, along with the part of the lateral column, or grey substance, or anterior column, there was a complex of symptoms which gradually resolved themselves into complete loss of tactile sensation. It appears from the experiments, that in lesions of almost any part of the cord a compensatory assumption of the functions of the injured parts by those left intact takes place. The only exception is in the case of the posterior columns. Every lesion of these columns causes a permanent loss of tactile sensation, not compensated for by any other part of the cord. This agrees with the clinical facts in *tabes dorsalis*, where the loss of tactile-sensation is the commonest symptom. It would almost seem as if, with the exception of the posterior columns, the other parts of the spinal cord had no definite function. Thus, if the lateral columns be found to have undergone great degeneration, whilst the posterior columns are only slightly affected, the symptoms are found to be chiefly referable to the lesion of the latter. So much is this the case, that many have concluded that the tactile impressions are not conducted by the posterior columns alone. The real explanation, however, according to Schiff, is, that the lesions of all other parts of the cord are compensated for, with the exception of the posterior columns.

This rule is true only within certain limits. It is true for the dorsal part of the cord, and the lower part of the cervical, *i. e.*, the part of the cord between the last three cervical and first dorsal vertebræ. Above and below these points the phenomena are to some extent different. Sanders-Ezn had found that in the lumbar and lower portion of the dorsal segment of the cord, the fibres which conduct the tactile impressions do not go directly from the posterior roots into the posterior columns, but after passing obliquely upwards first join them from $2\frac{1}{4}$ to $3\frac{1}{4}$ inches above their apparent junction with the cord. In this way the tactile fibres of the posterior extremities pass up the lumbar part of the cord and only join the posterior columns on a level with the second or third terminal or last but one of the dorsal vertebra (dog, rabbit). The posterior columns of the lumbar region contain the tactile nerves of the organs of generation, pelvis, anus, and tail. The tactile nerves of the feet lie in still other regions of the cord. Schiff confirms these views of Sanders-Ezn, and shows, also, that in the lumbar segment lesions of the lateral columns have in relation to the posterior extremities the same results as lesions of the posterior columns in the dorsal and lower cervical portion of the cord. The paths of tactile

impressions alter their position, but not their character, in the lower portion of the cord. And, just as in the other parts, a lesion of the lumbar portion may be compensated, with the exception of the parts concerned in tactile sensation. Hence, ataxy of the posterior extremities might result from lesion of the lumbar portion of the cord without any affection of the posterior columns. In such cases, the tactile sensation in the anal region would be unaffected.

Lesions of the posterior columns, at least in the upper part of the lumbar segment, cause paralysis of tactile sensation in the region of the anus, while the sensation and motion of the posterior extremities remain normal. This fact was also pointed out by Sanders-Ezra.

In the region situated above the last three cervical vertebrae, there is a strand of white substance in the lateral column, which serves as the path by which the stimuli for the thoracic movements in respiration are conducted. Lesions of these strands cause absolute and permanent paralysis of the respiratory movements, never compensated by any of the other parts of the cord. Section of the lateral column in the upper cervical region causes, along with a greater or less insensibility to tactile impressions, a complete immobility of the ribs during respiration. Schiff has observed the same symptoms in man in a case of injury of the cervical portion of the cord.

Investigations into the function of the lateral columns in the dorsal region proved that they do not conduct the sensory (pain, pressure) impressions of the hinder extremities. These latter are conveyed through the central and lateral grey substance of the cord. The lateral grey substance of the right side in dogs, rabbits (and also in man), specially, and perhaps also exclusively, conducts the sensations of pain of the left hinder extremity, and *vice versa*. An exception to this is in cats, in whose cords the sensory paths do not decussate. In these the grey substance conducts the sensations of pain on the same side. The decussation appears to be more complete in man than in the dog. Schiff has seen a case, a child in whom there was lesion of the left side of the cervical cord, accompanied by complete insensibility of the greater portion of the right leg. The strands conducting the sensations of pain are themselves completely insensible to irritation.

VI. Experiments on Gastric Digestion.—Experiments on dogs with gastric fistula, consisting in introducing given quantities of albumen enveloped in muslin into the stomach, confirm Schiff's previous statements that the energy of gastric digestion is, in a high degree, dependent on the physiological state of the animal as to hunger, or exhaustion of the stomach by just completed digestion. In regard to the latter, he found that the stomach was able to digest only a very small quantity of albu-

men, as compared with a stomach in a normal state of digestion. The difference could only be in the condition of the pepsin. Schiff has made a number of experiments to determine the digestive power of stomachs in different conditions. He finds that the digestive power does not depend on the mere quantity of pepsin, but to a great extent on the relative quantity of water and acid in the artificial infusion. The ordinary quantity of water employed to make an infusion of the mucous membrane of the stomach is inadequate to bring out its full digestive power.

Various experiments are recorded, having for their object to determine the maximum degree of dilution. The research is not yet complete, but a remarkable result has been arrived at—viz. that the stomach of a dog in good condition requires 200 litres of water to bring out its full digestive powers. Such an infusion has been found to be capable of digesting 60,000 grammes of albumen.

Schiff's former researches with infusions of stomach led him to state that an infusion of one stomach might, under very favourable conditions, digest from 150 to 180 grammes of albumen—an amount which was considered by several physiologists as too high. The present results, therefore, are the more likely to draw attention.

VII. Researches on the Pancreas.—The object of these experiments was to determine definitely whether the pancreatic secretion is really essential to the digestion of fat. In order to eliminate the pancreatic secretion without having recourse to the dangerous operation of extirpation of the gland, Bernard injected a fatty mass into the duct, for the purpose of stopping it up. He found that, when this was done, fat ceased to be assimilated. Schiff, however, attributed the non-assimilation of fat to compression of the bile-duct by the inflammation and swelling of the pancreas excited by the injection. In order to avoid such irritation and its consequences, he injected fluid paraffin into the duct, which effectually stops the secretion by becoming solid, and acting in a purely mechanical way. In the successful cases, the animals operated on (dogs), had recovered their appetite on the second or third day, and assimilated their food, and kept up their condition as before. The digestion of fat was in no wise altered. A dog can in a normal condition daily assimilate 12 grammes of fat for each kilogramme of body weight, without a trace of it appearing in the faeces. The dogs operated on were fed with a like amount of fat, and the result showed that only traces of fat were to be discovered in the faeces after three days of experimentation. It therefore appears that, without the pancreas, animals still retain complete power of digesting fat by means of their intestinal secretions.—*The Medical Record.*

On the use of Dry-Powdered Blood. By DR. DE PASCALE, of Nice.

SEVERAL years ago I published from my experience and medical practice, some observations on the very beneficial effect of warm blood taken the moment when extracted from the calf or ox, killed for general domestic use.

I mentioned at that time the cases of three invalids, not English, suffering from hæmoptysis, in whom tubercles were diagnosed, who derived great benefit from that treatment. The quantity of blood lost by one of the above-mentioned invalids was enormous; but his perseverance for two years or more in drinking daily the blood, made him well and healthy. At this present time he is walking about Nice, or attending to the business of his large establishment.

I do not wish to dwell upon the great improvement in my own general health after drinking the warm blood for about a month. One of the English doctors practising in this place had the opportunity of verifying my improvement, and the experiment which I made, when in a state of general weakness and pallor, in consequence of suffering for many years from malarial fever, taken during the siege of Venice in 1848 and 1849.

Everyone knows the history of those barbarians, who were accustomed to drink the blood of their victims at a feast after their battles; and also of those who were supported by the blood of their companions, wrecked in the *Medusa* in 1807; and of others who have been nourished in the desert by the blood of animals.

Discorides affirms in his *De Medicinali Materia*, that animal blood has been used for the purpose of curing disease; the old women adopted a similar system.

Finding among the English and American patients in Nice an unconquerable repugnance to such a remedy, the name only having the power of producing nausea, I was obliged to disuse it. But afterwards a dim recollection of the manner in which it was administered by old Medical men in my youth, made me adopt the plan of giving it in the form of dry powder.

History also relates that dry-powdered blood was used before the thirteenth century, when the quack, Jean de Gaddesden, brought it into renown.

It is easy to understand the comparative difference between the warm and the dry blood. In the first there is life with animal heat, and volatile principles, which conduce to assimilation. Notwithstanding, in the dry blood, fibrine, albumin, hæmatozine, manganatic, and ferruginous salts remain.

Between the seventeenth and eighteenth centuries the celebrated anatomist of that time (F. Buischio) found in the blood the necessary elements for the composition of every tissue of our body.

At the end of the seventeenth century also was discovered one of the most important principles of the blood, that is iron, by M. Lamey, and afterwards by Berzelius. According to Berzelius, a distinguished professor of chemistry, the blood of the ox is the most similar to that of man; this, in fact, I have used in several cases of general weakness with anæmia, and in cases of chlorosis.

The blood of the ox, after being dried in a water-bath, is reduced into a very fine powder, and grated through a sieve. Dry blood can be taken for any length of time, being almost tasteless, and no repugnance is likely to be felt, as is often the case with raw meat. It can be taken as any common powder, mixed with soups, milk, marmalade, chocolate, or enclosed in a wafer.

In two cases I have given the powdered blood under the name of nutritive powders, mixed with a small quantity of pepsine; choosing that name lest ladies, startled by one more precise, might have difficulty in taking the medicine.

The quantity to be taken may vary according to the age, sex, or the state of health and digestive power of the patient. In general, I begin with thirty grains which is increased according to circumstances; but quantity must be left to the discretion of the physician who prescribes.—*The Medical Press.*

MEDICAL INTELLIGENCE.

(General Orders by the Commander-in-Chief.)

Dress.

No. 7.

With the sanction of Government the Commander-in-Chief is pleased to lay down the following dress for all warrant and non-commissioned officers serving in departments, not included in G. O. 19 of 1872, (Madras G. O. C. C., 5th April 1872.)—

WARRANT OFFICERS.

Conductors and Sub-Conductors.

Coat—Patrol Jacket,—blue cloth, of artillery pattern, but with Staff buttons, and two rows of gold Russia braid on collar, gold three corded shoulder knots, and gold braid Austrian knot on sleeve, for conductors.

For sub-conductors, a similar jacket but with one row of gold cord on collar, gold two corded shoulder knots and smaller Austrian knot on sleeve.

Trousers,—blue cloth with scarlet stripe, one and a half inches wide, down each seam.

Helmet,—Hawkes' pattern without spike, white cotton puggree.

Boots,—Wellington.

Sword scabbard,—Infantry pattern.

Swordbelt,—black leather sling with snake hook.

Forage cap,—blue cloth with gold band, oak leaf pattern, one inch and a half broad, with black leather peak.

Non-Commissioned Officers.

Tunic,—blue serge, scarlet worsted shoulder cords, scarlet worsted single braid Austrian knot on cuffs and gold "universal pattern" ace chevrons.

Helmet,—Hawkes' pattern, white cotton puggree.

Trousers,—Sergeant's cloth, with a scarlet stripe one and a half inches wide down each seam.

Forage cap,—blue cloth, with gold lace braid, oak leaf pattern, one inch and a half broad, with black leather peak.

Boots,—Wellington.

Sword and scabbard,—Infantry pattern.

Swordbelt,—black leather sling with snake hook.

FINANCIAL DEPARTMENT.

Notification.

Leave and Allowance.

No. 978.

Fort William, 10th February 1873.

The Governor-General's Council, directs that the following be substituted for Sections 18 and 19 of the Civil Leave Code, and the rules under those Sections:—

Section 18.—The amount of privilege leave admissible at one time is limited to three calendar months.

The amount of privilege leave earned by an officer is one-eleventh of the time during which he has been on duty without interruption. Provided that no privilege leave can be earned by an officer by duty done while three months' such leave are due to him.

The privilege leave due to an officer is the privilege leave which he has earned, less the period during which he has been absent on privilege leave.

Absence on privilege leave, though not counting as duty, is not an interruption of duty within the meaning of this Section.

Note.—This rule applies to Commissioned Military Officers, in civil employ.

1. To Uncovenanted Judicial Officers, whose duties are not continuous, and who enjoy regular vacations during which they are allowed to be absent from duty, privilege leave is not admissible except in case of urgent necessity.

2. The Local Government may, with the sanction of the Government of India, impose a similar restriction in the case of covenanted officers.

3. Time spent on subsidiary leave does not qualify for privilege leave. But if an officer returning from leave not before the expiration thereof, be, solely for the convenience of the Local Government, and not for any fault of his own, prevented from joining an appointment on which he has a lien; or if he be kept out of employ on subsistence allowance; then, duty qualifying for privilege leave begins on

the day on which he presents himself to the Local Government ready for duty.

4. When an officer is first appointed to the Public Service, duty qualifying for privilege leave does not begin until he takes charge of a particular office.

5. "Examination leave," may, if the examination for which it was granted be successfully passed, count as duty qualifying for privilege leave, unless the officer has already had twelve months' such leave.

6. Suspension from office as penalty for misconduct is an interruption of duty within the meaning of this Section.

Note.—This rule applies to Commissioned Military Officers in civil employ.

7. If an officer remains absent after the end of examination leave or of joining time the period of absence cannot count as duty qualifying for privilege leave, and unless the absence is accounted for to the satisfaction of the Local Government, it is an interruption of duty within the meaning of this Section.

Note.—This rule applies to Commissioned Military Officers in civil employ.

8. With regard to the privilege leave of Commissioned Military Officers in civil employ, no distinction is made between officers who have substantive civil appointments, and those who are merely officiating in the Civil Department. The leave is earned by uninterrupted duty in either the Civil or the Military Department.

Section 19.—To an officer who has been on duty without interruption for eleven calendar months, and who has not, for six calendar months, been absent on privilege leave, the whole or any part of the privilege leave due to him may be granted.

Note.—This rule applies to Commissioned Military Officers in Civil employ.

1. Before privilege leave is granted to an officer, he must record a declaration that he has no intention of retiring or of taking furlough, special leave, or leave on private affairs or medical certificate within three months of his return to duty. Though not absolutely debarred by this declaration, from applying to retire or for such leave within the three months, he should, if he does so, explain fully his change of mind.

Note.—This rule applies to Commissioned Military Officers in Civil employ.

2. If an officer is, on public grounds, recalled to duty from privilege leave before the whole leave granted to him is ended, privilege leave may be granted to him again even within six calendar months from the date of his return to duty.

Note.—This rule applies to Commissioned Military Officers in Civil employ.

MADRAS MEDICAL FUND.

Retirement.

Surgeon Major J. Kirkpatrick, M. D., from 7th December 1872.

Death.

Deputy Inspector General A. Blacklock, on 11th February 1873.

FORT ST. GEORGE, }
28th February 1873. }

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c.,
from 1st to 28th February 1873 for securing the following rates of pension.

Names of Subscribers.	Children's date of birth.	Sex.	Rates of Pension secured.	To what period.	Payments how made.
J. J. Heffernan ...	26th Sept. 1872 ...	Female...	Full ...	To 21 years ...	By Donation and Subscription. By Donation.
H. Young ...	10th Nov. 1852 ...	do. ...	do. ...	*From 21 to D or M &c.	
J. L. Ranking ...	1st August 1856.	do. ...	* Half...	To 21 years ...	

N. B.—The rates of Pensions marked thus *are additional to those previously secured.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
28th February 1873.

TO CORRESPONDENTS.

Surgeon A. GANACK, M. D., *Received with thanks.*
Inspector General of Hospitals, I. M. D., do.
Assistant Surgeon L. C. NAXNEY, do.
3rd Class Hospital Assistant T. GANAPATHY PILLAY,
Received with thanks.
Assistant Apothecary JOHN WATTS, *Received with thanks.*

BOOKS, &c., RECEIVED.

Medical Press and Circular; *January 1st, 8th.*
Indian Medical Gazette; *February 1st.*
The Doctor; *January 1st.*
The Medical Record; *January 1st, 8th.*

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MONTHLY JOURNAL
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No. XL.—APRIL, 1873.

ORIGINAL ESSAYS.

ART. XIII.—*Case of amputation of the thigh. Recovery.*

Reported by Surgeon-Major W. J. VANSOMEREN, M. D.

Mootally Shah, aged 24 years, was admitted into the Native Infirmary, on the 29th of May 1872, with extensive ulceration, of a year's standing, extending from the popliteal space downwards, on the posterior and inner aspects of the right leg, to its lower third. He denied ever having had Syphilis, although the characters of the ulcer suggested a syphilitic origin, and his general appearance was in keeping with that cachexia. He was anæmic and very much out of health, with a quick and feeble pulse, and extreme general debility. The ulcer was dressed with Carbolic Acid lotion and the patient placed on a mixture of Iodide of Potassium before meals, and a pill of Nux Vomica, Iron and Quinine after meals. The following day, it was evident, on examination with a probe, that the tibia was honey-combed by disease, but the man's general condition dictated the postponement of amputation, which I felt to be the only means likely to save his life. He was prescribed a measure of arrack—and shortly afterwards, Fish oil with the Tincture of the Perchloride of Iron was substituted for the chalybeate pills he had been taking. Under this treatment he improved sufficiently to justify my operating on the 5th June. I removed the

diseased limb above the knee-joint, when the man was under the influence of Chloroform. Two incisions were made, mapping out the limits of a long anterior and short posterior flap, which were dissected from the subjacent muscles. These muscles were then divided in three instalments, and the bone subsequently sawn through. As the main artery was divided just after its entrance into Hunter's canal, both the *popliteal* and *anastomotica magna* required securing, which was done by acupressure with two needles. The parts were well washed with Carbolic acid lotion, the flaps brought together and maintained in apposition with sutures, and the whole stump dressed antiseptically and bandaged. A mixture of Nitro hydrochloric acid, Tincture of Opium and water before meals, Fish liver oil and Tincture of the Perchloride of Iron after meals, good nourishment and stimulants were prescribed.

The needles were removed on the following evening, and antiseptic dressing continued, until the wound was healed on the 20th of June, *fifteen* days after the amputation. Patient was detained in hospital *five* days longer, and then left quite well—a speedily happy result due, in my opinion, principally to the use of acupressure needles in the first instance, and antiseptic dressing in the second. The man was an opium eater, and his miserably depressed condition, both before the operation and at the time of its performance, made me very doubtful of saving his life,—much less did I dare to hope for such a rapid recovery and one so complete withal.

ART. XIV.—VEPERY HOSPITAL REPORTS.

Case of Enteric Fever. By Assistant Surgeon L. C. NANNEY,
Acting Surgeon 2nd District.

J. S., æt 9 years, admitted on the 26th December 1872, with fever which is said to be attended with diarrhœa of a watery character. Complains, on pressure, of pain in the right iliac fossa; said to be of six days' duration. Tongue furred, clean at edges, papillæ prominent. No appetite, much headache and thirst.

Vespere 26th.—Temperature, 104·6; pulse, 130. This morning, 27th, temperature 103; pulse, 118; respiration, 40.

somewhat delirious last night. One faint spot observable in right inguinal region. Two pints milk.

R. Potassæ Chloratis 3 i.
Acidi. Hydroch. dil. 3 i.
Aqua. 3 xxiv.
Ft. mist. 3 i every 3rd hour.
Milk diet.

Cold to head. Hair to be cropped. *Vespere.* Respiration, 40; pulse, 130; temperature 103·8.

December 28th.—Slept well during the night, complained of occasional pains in right iliac region, some tympanites, slight diarrhœa. Motions semi-consistent, with occasional scybala. Pulse, 110; temperature, 100; respiration, 32; *Vespere.* Pulse, 120; temperature 103; respiration, 40.

29th.—Temperature 102·6; pulse, 120; respiration, 32. Bowels moved twice, occasional pain in iliac fossa; no gurgling. No spot, less tympanites. Urine voided freely. *Vespere.* Pulse, 104; temperature, 102·6.

Continue treatment.

30th.—Pulse, 120; respiration, 34; temperature, 102·4; slept pretty well. Pain occasionally in iliac region. Bowels opened once, scantily. Enema of warm water. *Vespere.* Pulse, 120; respiration, 36; temperature, 103.

31st.—Temperature, 101·4; pulse, 116; respiration, 32. Slept well; bowels opened once; passes urine freely, specific gravity, 1019; looks better; no spots.

Repeat enema.

Mutton broth.

Vespere. Temperature, 102; pulse, 120.

January 1st, 1873.—Temperature, 101·4; pulse, 116. Still some tenderness in right iliac fossa. One suspicious looking spot, but not positively defined.

Vespere. Pulse, 112; temperature, 102·4.

2nd.—Pulse, 120; temperature 101. Six lenticular shaped rose colored spots visible on back. Had two motions yesterday of an ochry character. This is the 14th day of the fever.

Vespere. Temperature, 101·6; pulse, 100.

Continue medicines.

3rd.—Temperature, 100; pulse, 120; improving. *Vespere* Pulse, 92; temperature, 100·6.

Continue diet and medicines.

4th.—Pulse, 96; temperature, 99. Had one motion yesterday which was natural in appearance. *Vespere.* Temperature, 102.2.

5th.—Temperature, 96. *Vespere*, 100.4; pulse, 80.
Continue medicines and diet.

6th.—Temperature, 96; *Vespere.* Temperature, 100.

7th.—Temperature, 95; *Vespere.* Temperature, 100.

8th.—Temperature, 96; *Vespere.* Temperature, 99.

9th.—Pulse 80; temperature, 96; steadily improving. Mother is desirous of giving the boy a change.
Discharged. Convalescent.

A Case of Encephalitis.

January 1st, 1873.—S. N., æt. 3 years, admitted yesterday morning with high fever and diarrhoea, and from seven to ten watery stools which became green after having been voided. Heat of scalp; some injection of conjunctiva, picking of nose, restlessness, and a ferret appearance of the eye. The mother also lost a child, as she states, from persistent nausea. There are night screams, tongue red at edges and thickly coated at base, no turgescence of the vessels of the scalp, has cut all his milk teeth. Temperature on admission, 104; pulse, 140; respiration, 40.

Vespere. Temperature, 103.6; pulse, 140.

Infant diet.

Cold to Head (Ice cap.)

Tepid sponging every 3rd hour.

R. Hydrargyri c crota gr. iij.

Ft. pulv. bis. in die.

Mist. Diaphoretic. 3 i.

every 4 hours.

To-day, Temperature, 103; pulse, 140.

Vespere. Pulse, 136; temperature, 102.

Continue Ice cap to head.

R. Calomelas gr. j.

In pulv. bis. in die.

Repeat diet and diaphoretic.

2nd.—Pulse, 130; respiration, 40; temperature, 100; passed six motions yesterday, of a watery character. Slept for three hours, and began screaming and startling occasionally. No excessive heat of scalp. No violent delirium or vomit.

ting present. Has a scared look when waking out of sleep. *Vespere*, Temperature, 102; pulse, 120.

Continue Calomel and Ice cap.

To have Tinct. Hyoscyami, m x. h. s. s. if necessary.

3rd.—Temperature, 100; pulse, 120; *Vespere.* Temperature, 101.4; pulse, 120.

4th.—Pulse, 104; temperature, 100; much better in every respect, child has steadily improved. *Vespere.* Temperature, 101.

Omit Calomel and Ice cap.

5th.—Temperature, 98; pulse, 102; *Vespere.* Temperature, 102.

6th.—Temperature, 97; *Vespere*, 96.

7th.—Temperature, 96; *Vespere*, 100.

8th.—Temperature, 96; *Vespere*, 99.

9th.—Temperature, 96; much better.

12th.—Well. Discharged.

ART. XV.—Notes on a (supposed) Hindoo Hermaphrodite. By Surgeon A. GAMACK, M.D., Civil Surgeon, Madura.

Veerayee, aged 50, was sent to the Madura Civil Jail as a female, but, as there was a masculine look about the face, a few hairs on chin and no mammary development, the gender was doubted, and on being asked the individual could not say what was his sex but thought he was a little of both. He wore long hair, was dressed as a woman and said he had been brought up by his parents as a female, that in childhood he had been promised in marriage, but as the menses did not appear the ceremony had never taken place. In his village it appears he had for long been looked upon as a *lusus nature*; sometimes he worked as a man ploughing and cultivating but generally consorted with women considering himself as more of their sex than of the other.

On examination the genital organs at first sight gave the idea of the individual being a female as there were two distinct labia, the right slightly pendulous, and no appearance of any penis, but on the lips being separated instead of a vagina there was found to be only a cul-de-sac about an inch and a half or two inches in depth. The supposed labia were discovered to be simply a cleft scrotum, each

half or lip containing a testicle, the right being about the usual size with distinguishable epididymis and spermatic cord but the left small and abortive. At the anterior junction of the divided scrotum there was a diminutive penis about an inch long, now erectile and about the thickness of a pencil, entirely enveloped in the loose folds of skin except a small imperforate glans which protruded slightly. The orifice of the urethra was in the mesial line within the fissure and about an inch posterior to the base of the rudimentary penis. So great was the similarity of the parts to that of the other sex that it is not surprising a mistake was made and had the testicles not descended from the abdomen to occupy the position they did, it could scarcely have been distinguished. Still, as the scrotum in the early part of utero-gestation is always divided, the malformation was no doubt a mere arrest of development, and would thus be easily accounted for.

ART.—XVI. *Topographical description of the station of Sironchá.* By Assistant Surgeon J. GAFFNEY, Civil Surgeon, Upper Godavary District.

In the "*Central Provinces Gazetteer*". Sironchá is thus described: "Sironchá the head quarters of the Upper Godavary District, pleasantly situated on the left bank of the Pranhitá, two miles above its confluence with the Godavary, and 120 miles south-south-east of Chándá, the nearest station of the Central Provinces. It is 520 feet above the sea-level, according to the Topographical survey maps, but only 360 according to the levels of the Public Works Department. The space now occupied by the public buildings and European Officers' houses was formerly covered with dense jungle. The buildings all stand on a slightly elevated ridge, which slopes away gradually to the north, towards the village and lower grounds in the vicinity of the river. The soil is sandy, and the drainage good. From the summit of the ridge there is a fine view of the winding course of the Pranhitá, and of the distant hills on its bank. The extreme point of land round which the river flows is a high bluff of sandstone, on the top of which are the ruins of a small fort which overhang the river. This is said to have been built above 150 years ago under the auspices of one Wali Haidar, a holy man who was buried

here, and whose tomb is considered sacred. There are no manufactures, and the trade consists chiefly of imports for local consumption. The usual establishments of a district head-quarters are located here, including English and Telugu schools." I would add to this description a few remarks with reference to the situation of the military Detachment lines.

The Detachment lines are built on an elevated ridge running at right angles to the river Pranhitá about half a mile from the civil station. The lines, which are built and kept in repair by Government without any rent being taken from the Sepoys, run transversely across this ridge, parallel to the river from which they are about 600 yards distant: at each end of the lines is a pucca well, these never run dry, the water is good, the soil is a mixture of red clay and sand, porous in character and favorable for drainage. The tract between the lines and the river is of black "cotton" soil. The river does not here overflow its banks in the rains. The site of the lines is about 30 feet above the highest flood level, near the river a few fields are used for jowaree cultivation: between the lines and the civil station (North side) is a clearing from jungle, the same on the east, but to the south the original jungle exists to within a few hundred yards of the lines.

Climate and Temperature.—Complete meteorological observations are not recorded. The average annual rainfall is 45 inches. The average annual temperature taken from monthly averages for last year were, at 4 P. M. 87°-63° at 10 A. M. 84°-65°. The highest monthly averages were April 100°-80° and May 101°-23° at 4 P. M.

Fever is the only prevalent disease in the station and sets in immediately after the first fall of rain in the end of June or beginning of July. Europeans, as a rule, do not suffer from fever; before October scarcely a single individual in Sironchá escapes fever for a single year. The type is intermittent, usually tractable if early treated; the few cases of remittent or continued fever treated are usually met with in people brought from a distance who have been long ill without treatment.

Epidemics.—No epidemics have visited the station for the last five years. Cholera appeared in the District but was kept out of the station by having quarantine regulations along the river-bank. An occasional case of small pox is seen but such cases are very rare.

Medical Establishment.—There is but one commissioned Medical Officer, the Civil Surgeon of the upper Godavary District, who is an Assistant Surgeon of the Bengal establishment. A Hospital Assistant has charge of the Civil Hospital and Jail, a Native Doctor is attached to the establishment of the Deputy Commissioner and a Hospital Assistant is in charge of the military Detachment, consisting of two companies of the 20th Madras Native Infantry. All the Hospital Assistants are subordinate to the Civil Surgeon who has lately been put in charge of the Detachment by the Government of Madras.

ART. XVII.—*A case of Hydrophobia caused by the bite of a Wolf.* By Mr. Assistant Apothecary J. WATTS, Mysore Commission.

Hydrophobia, as is well known, is a disease very common in hot climates, but particularly so in India, owing to the number of starving pariah dogs that are to be found roving about. The dog is not the only medium by which the virus is conveyed, because we know that other animals of the Canine tribe are also liable to attacks of *Rabies*, as the fox, jackal, and the wolf. Fortunately all persons who are bitten, are not equally susceptible to this formidable disease.

The utter inefficacy of the usual remedies (and those that are, at the present day, considered specifics in all diseases connected with nervous irritability) in the treatment of this dreadful affection, may well be termed the *opprobrium medicorum*. Indeed, this incurable disease may be, nay is often hastened to a fatal termination by the treatment adopted; or else, it continues its course steadily unto death, uninfluenced by even the opposite means of cure. We have no specific remedy, nor any plan which can be depended on, after the disease has once shown itself. Coupled with this, is the ignorance and apathy on the part of the natives, that to induce them to submit to a plan of treatment for eradicating the virus or neutralizing its effects is almost useless. Even after the disease has shown itself, it is not until they have performed their chants and ceremonies, and exhausted all their store of quackery, that they resort to European medicine; and in detailing the following case, I am aware that I am adding one more melancholy instance of failure of

the cure of a disease, which has baffled all medical skill, and presents but little hope of future success.

On the 21st of August last, at 8 A. M., I was called to see an old man of 50 years of age, said to be suffering from symptoms of Hydrophobia. On arriving at the house, I found him seated on his haunches looking wildly about, and making efforts to speak, and the following history of his case was given:—

About a month ago, when going out to his work early in the morning, a wolf attacked and bit him in the abdomen. The wound was not considered of any consequence, one tooth having entered, nor was there any bleeding. The usual native remedy (chunam and a copper coin) was immediately applied and the wound healed in a few days. Nothing more was thought of it till the 20th (the day previous to my being called in), when he was observed to be dull, and complained of feeling unwell, and the next morning he was excited and looked wild.

The following are the notes taken by me:—

Is constantly hawking as if something were in his throat, and at every attempt to cough he puts a piece of cloth into his mouth and wipes his tongue, and, in doing so, causes it to bleed. Is restless, and the mention of water makes him start, tongue protruded tremulously, countenance expressive of anxiety, skin below natural temperature and moist. Pulse 120, full. Bowels have not been moved since yesterday. Does not complain of any pain in the part where he was bitten.

Is very eager to drink, but when water is given, he seizes the cup in desperation and attempts to put it to his mouth, but with a sudden jerk withdraws it, during which the respiration is suspended. Seems agitated by the entrance of any person into the room, by sudden noise, or by a current of cold air, and to avoid the latter he cringes behind a curtain.

R. Chloral Hydras gr. xx.

Aque 3 i. ft. mist. To be taken immediately.

10. A. M.—Could not swallow any of the mixture; in other respects is in the same way.

R. Chloral Hydras 3 i.

Aque 3 iii. To be given as an enema.

1 P. M.—Immediately after taking the enema he fell asleep and has just awoke, but he has not benefited by the repose. Speech quite unintelligible; looks wilder. Pulse 124, small,

and intermitting every 30 beats; when asked to take some egg flip, he took the cup into his hand, and on drawing it close to his mouth, he appeared convulsed and after a deep inspiration the convulsion wore off. The flip was given as an enema.

3 P. M.—Appears to be worse, seems afraid of something and hides himself behind a curtain, clinging to anything he grasps; moves away when water or any fluid is shown to him; was persuaded to drink a little congee-water, but on swallowing a severe convulsive fit came on, although he is quite eager to take anything to drink and is craving for rice. His bowels have moved once, skin cold, pulse 140 and small, intermitting every 30 beats, is quite wild and restless, can hardly lie down to take an enema as he feels suffocated.

R. Ext. Belladonnæ gr. $\frac{1}{2}$.
Ext. Gentianæ q. s.
Ft. pill h.s.s.

6 P. M.—Swallowed the pill with very great difficulty. Continues very restless, moving about in one confined spot behind the curtain and rocking himself to and fro; takes a deep inspiration every two or three minutes. Endeavours to explain his feelings, beating his head sometimes and bawling out. Has a great craving for food; has not slept since the last enema. Pulse and skin much the same as last report. Has passed his urine.

Repeat Chloral enema.

22nd, 6 A. M.—On visiting the patient this morning found the door of the room locked from outside and was told that his friends were afraid to stop with him, as he had been very troublesome and furious during the night. On opening the door, he was found with his body bent, and resting on his knees and head and moaning. Seems wild and excited; tries to answer any question put to him, but is unable to speak distinctly. Skin cold; tongue quivering; pulse very small and 142; has no pain anywhere. Bowels moved once, respiration sluggish.

Repeat egg flip enema.

Lin. Chloroformi to spine.

1 P. M.—Has not slept, but has been quieter, and on the whole better; tried to swallow a small piece of "opper," but cannot bear the sight or mention of water; he says the very idea of water puts him into a fit and he feels suffocated.

Pulse small, 140; skin cold; tongue thick and furred, Bowels moved once.

Repeat enema Chloral.
and Ext. Belladonnæ gr. $\frac{1}{2}$ at 2 o'clock.

4 P. M.—Has been very quiet since the last enema, and he took the Ext. Belladonna pill quietly; has eaten a small piece of bread; speaks more distinctly. His friends were desirous of applying fire along the spine after rubbing the Chloroform liniment, but the sight of the fire made him agitated. He says that the pill makes him feel intoxicated and drowsy. Respiration easier, feels suffocated at long intervals. Hands cold; other parts of the body warm. Pulse 126 but smaller; has passed a small quantity of urine.

Repeat enema of Chloral.

23rd, 9 A. M.—Has not given any trouble but has not slept. Is not agitated nor convulsed, but says that he dreads the sight of water, which makes him bawl out; takes the enema very quietly, skin cold. Pulse small, bowels have not moved, urine scanty and high colored, tongue furred at back; mucus membrane of fauces of dull grey color.

Repeat Chloral enema.

1 P. M.—After the enema was given, he suddenly became convulsed and was thrown on his back from the sitting posture and has since been lying listless, with a vacant stare. Skin cold and covered with a clammy sweat, pulse hardly perceptible, cannot express himself and is evidently dying.

2 P. M. Has just expired.

Remarks.—The above case, I think, presents two or three interesting points for observation. *Firstly* the medium through which the virus was conveyed viz., the wolf. This animal bit thirteen persons in the same morning, three of whom died of Hydrophobia a week after, but whether the deceased was one of those first bitten is not known. *Secondly*, the influence of the mind as an exciting cause. This patient was residing in the immediate vicinity of two others who had been bitten. He is said to have been in a constant state of alarm, and whilst his neighbours still remain well, he falls a victim to Hydrophobia and dies.

In this then, as in many other diseases, the mind has a great deal to do as the predisposing cause of disease, those being less liable to an attack who fear it least. As an instance of the above argument, I must observe that one of the men who had been bitten was in constant attendance on this patient, and another, a woman who resided in a house just opposite, are as yet free.

Lastly the remedies employed. The belief is pretty general that canine madness is uniformly fatal in man. Instances of recovery however are on record, but they have attracted little attention from the fact that other diseases possessing a strongly marked nervous element may be mistaken for true rabies; for instance, in the Half-Yearly abstract of Medical Science Vol. xxviii, a case is recorded of Hysteria simulating Hydrophobia.

In nine cases out of ten any treatment is empirical and dangerous that attempts the cure in any other way than removing the cause. In various forms of Tetanus from wounds, the same reasoning is applicable. It is the same also in Hydrophobia. But such an opportunity seldom, or never happens, for, as I said before, no native will submit to the wound being excised, and all that could be done on the wound being inflicted is cauterization. As regards the remedies employed when the attack comes on, there is reason to believe in the inefficacy of Belladonna in convulsive diseases. One case of tetanus was treated some time ago in the Rajah's Hospital at Mysore by this agent, but without any satisfactory result—so also in the case here recorded. Two pills were given but as there was a difficulty experienced in swallowing it was not continued. The most reliance was, therefore, placed on Chloral Hydras and if this medicine did not afford permanent relief, there was at least one advantage gained—the awful malady was stripped of its horrors. If not less fatal than before, it was reduced to a scale of suffering less than that which precedes death in most cases. Indeed the state of the patient at one time was so encouraging as to hold out hopes of success; but it is the general belief that in Hydrophobia there is an abeyance of all the symptoms a short time before death.

ART. XVIII.—GENERAL HOSPITAL REPORTS.

Case of Hepatic Abscess. Recovery. Under the care of Surgeon-Major GEORGE SMITH, M. D., Physician, General Hospital.

Veeraswamy, a lascar, aged 25 years, was admitted into the General Hospital on the 22nd February 1869, complaining of severe dragging pain in the Hepatic region. He stated that the pain commenced about ten days before, and that it was attended by fever of a continued type.

Posteriorly and a little to the side on the right is an elastic painless, hot swelling, which is said to have appeared at the beginning of the febrile symptoms. It has been becoming more prominent of late. The patient has been troubled with frequent calls to stool for the last twenty days and complains of profuse night sweats. Tongue foul; skin dry; pulse feeble. Nourishment given and bran poultices applied to the side.

24th.—The abscess was tapped this morning under Carbolic acid oil, and about 34 ounces of pus withdrawn. Bowels were opened about four times, the stools containing blood and mucus.

25th.—About 11 ounces of pus drained away yesterday. Stools still contain blood and mucus.

26th.—About 5 ounces of pus drained away yesterday.

March 2nd.—The total quantity of pus discharged since the operation amounts to 72 ounces.

7th.—Is doing well. Appetite good. Total amount of discharge, 109 ounces.

12th.—Since last report there has been no discharge of pus. Appetite is good and there is an absence of all constitutional disturbance.

15th.—Complains of pain in the hepatic region. Had slight fever yesterday. No pus has escaped since the 7th instant owing to the closure of the opening. Another swelling has appeared and is tapped, and 23 ounces of sanious pus are withdrawn.

R. Ol. Morrhuæ ʒ ss.

Sy. Ferri. Iod. ʒ xxv. Ft. Haustus.

To be taken twice daily.

19th.—Opening closed on the day following the operation. Had rigors at 1 o'clock this morning.

22nd.—Has had fever every night followed by profuse

perspirations, which have been held in check by Quinine in solution.

24th.—The abscess is pointing a little posteriorly to the locality of the last incision. Punctured under carbolic acid oil and 48 ounces of pus withdrawn. Total amount of pus 178 ounces.

April 1st.—About 42 ounces of pus drained away yesterday. Fever persists. Total quantity of pus 220 ounces.

9th.—There has been no discharge of pus since the last date; patient has been gradually improving in health. This morning he complains of pain in the region of the liver.

12th.—The abscess has again pointed, but in a new situation. Opened with a scalpel and 32 ounces of pus escaped.

20th.—No escape of pus since last report. Patient complains of pain in the region of the liver. The side is enlarged and the abscess is again pointing. This is opened and 48 ounces of pus escaped.

Total amount of pus evacuated, 300 ounces.

21st.—Patient is feverish, with a rapid feeble pulse of 120. Discharge of pus has ceased. Small doses of quinine and strychnine are ordered.

May 1st.—Since last report 21 ounces of pus have been discharged.

May 31st.—Since the last date, the quantity of discharge has been daily diminishing, and has now quite ceased. Has been gaining strength rapidly. Total amount of pus evacuated about 430 ounces. Discharged cured.

Remarks.—The case is one of acute and probably single abscess, occurring in a young and otherwise healthy patient. The symptoms were distinct from the first, and when the first puncture was made, a valvular one, the abscess was pointing and the constitutional symptoms were pressing. The abscess was tapped five times, and its large size is proved from the quantities of pus removed at each operation. During the month of May the cavity of the abscess gradually contracted, and the patient left Hospital in good health, all hepatic symptoms having disappeared. In cases of hepatic abscess occurring in native subjects, where, as in this instance, the general health is good and the pointing of the abscess is clearly made out, we may take it for granted that the peritoneal cavity is excluded by adhesion, and that no danger of escape of pus into the peritoneum will follow

RECORDS OF TEMPERATURE, PULSE, RESPIRATION, EXCRETA.

Disease, *Acute Rheumatism*, 132

Name *E. P* Age *20 years*.

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Termination, *Recovery*.

DAYS OF OBSERVATIONS	February 7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th	18 th	19 th	20 th	21 st	22 nd	23 rd	24 th
DAYS OF DISEASE	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
TEMPERATURE FAHRENHEIT	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.	Time 7 4 1/2 A.M. P.M.
106																		
105																		
104																		
103																		
102																		
101																		
100																		
99																		
98																		
97																		
96																		
PULSE MORNING	108	110	104	112	108	108	104	108	100	104	100	82	98	104	92			
PULSE EVENING	118	114	128	116	118	116	114	118	120	110	120	82	98	104	92			
RESPIRATIONS M.	18	36	42	42	20	18	20	26	30	24	36	24	112	112	116			
RESPIRATIONS E.	48	46	36	40	22	24	22	30	36	30	44	24	28	28	18			
URINE OZ IN 24 HOURS	Very Scanty					Fair	Scanty			Scanty	Fair		36	34	36	28		
REACTION OF	Acid	Alkaline	Alkaline	Slightly Acid	Alkaline	Slightly Acid	Highly Acid	Acid	Slightly Acid	Highly Acid	Neutral	Alkaline	Slightly Acid	Slightly Acid	Alkaline	Alkaline	Slightly	Alkaline

LITHOGRAPHED BY ALEX. WARREN.

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DR. SMITH'S Case of *acute Rheumatism*. 253

its puncture. In such cases delay for the purpose of allowing the abscess to open spontaneously has this element of danger, that possibly rupture of the abscess may, in the meantime, take place into the cavity of the abdomen or pleura, or into the colon.

A case of *acute Rheumatism*. Reported by
Student R. WARDER.

E. P., aged 20, was admitted on the 6th February, 1873, with the following history:—

Eight days ago, while on his way from Pondicherry (during which he was much exposed to cold and wet), the patient felt a sudden acute pain in the right knee. A day after this he was attacked with high fever which has continued since, remitting in the morning and increasing in severity in the evening. It was accompanied at first with vomiting, nausea and headache. On the day after fever set in, his shoulders, elbows and left knee became the seat of acute pain. Subsequently his ankles, wrist and joints of the fingers and toes were attacked. The pain in the right knee continued throughout with much severity.

February 7th.—At present, he lies in a helpless condition. The knees, ankles, shoulders, wrists and joints of the fingers and toes are swollen, hot and very painful. Bowels are constipated. Tongue is furred. Skin is warm and dry. Pulse full and hard. Urine, scanty, of a reddish color, acid, specific gravity, 1030; contains a large quantity of urea and a copious deposit of urates. Has slight pain across the upper part of the sternum. Has no dyspnoea, respiration is regular. On auscultation, there is a slight endocardial bruit heard with the systole of the heart. Had a saline draught which has not yet operated.

R Potassæ bicarbonatis gr. xxv.

Tincturæ opii ℥ x.

Vini antimonialis ℥ xl.

Aquæ oryzæ calidæ ʒ ii, fiat haustus.

To be given every 3rd hour day and night.

Apply pigment of Iodine over the cardiac region and spongio-piline wrung out of hot water and sprinkled with nitrate of Potass to the painful joints. To have an

hypodermic of Morphia at bed time. Milk diet, and 2 pints of sago jelly.

Evening.—Is suffering from great dyspnoea and pain in the region of the heart, with a sense of constriction in the chest. Is very restless and slightly delirious. Skin is warm and dry. Respiration is irregular, about 48 per minute. On auscultation there is heard a loud friction sound accompanying the action of the heart, heard loudest over the left ventricle and during the systole. The first sound is entirely masked: the second is heard clearly at the base and is unaffected. The urine is highly acid. Complaints of pain in the hypogastrium, increased on pressure; bowels have not been moved.

Apply a blister 4 inches by 3 over the cardiac region.

R. Succī limonum ʒ ss.
Potassæ bicarbonatis gr. xxv.
Aquæ ʒ iss. fiat haustus.

Every 2nd hour.

8th.—Is slightly better. Feels weak. Has less pain over the region of the heart. On auscultation the friction sounds are indistinctly heard. The pain in the abdomen continues. Urine scanty, high colored, specific gravity 1030, contains a large deposit of urates. Bowels were moved once last night, the stool was dark and offensive.

R. Succī limonum ʒ ss.
Potassæ bicarbonatis gr. xxv.
Vini antimonialis ʒ xv.
Aquæ ʒ iss.

Every 3rd hour.

Continue the rest of the treatment.

Evening.—Has little pain in cardiac region. The abdomen is tender to the touch.

9th.—Feels better. Has no pain in the joints of the fingers and toes. Respiration is more regular. Bowels have not been moved. Urine is alkaline. Continue treatment.

Evening.—The pain in the joints has returned. Urine is acid.

10th.—Has a short dry cough which occasions severe pain in the cardiac region. The breathing is irregular. Skin is warm and moist. Perspiration is acid. Urine is not so

highly colored, but is turbid and slightly acid. Bowels have been moved by an enema.

R. Succī limonum ʒ i.
Potassæ bicarbonatis gr. xxv.
Vini antimonialis ʒ xv.
Aquæ ʒ i. misce.

Every 3rd hour.

Continue the rest of the treatment.

11th.—Feels better. Pain is severe in the hands and feet. Complains of cough which occasions great pain in the region of the heart. The pericardial friction sounds have returned. The urine is alkaline.

R. Vini antimonialis ʒ ss.
Tincturæ opii ʒ x.
Aquæ ʒ i. fiat haustus. Every 3rd hour.

Continue the rest of the treatment.

Evening.—Respiration is easier, 22 per minute.

12th.—The pains in the wrists, ankles and joints of the fingers and toes were very severe last night. Feels better this morning. The pericardial *bruit* friction sound are heard slightly, the endocardial *bruit* is more distinct. Urine is clear, yellow, slightly acid; a moderate quantity passed.

Continue treatment.

13th.—The pain in the joints of the left hand is not so severe. Complains of much pain in the ankles and knees. The ankles, knees and joints of the toes are swollen and painful to the touch. There is some effusion into the left knee joint. The pain is increased at night and on the slightest movement or pressure. Urine is highly acid, less in quantity, and slightly turbid with urates.

R. Aquæ calcis ʒ vi.
Lactis Oj. Misce.
To be used as a drink.
R. Potassæ acidæ Tartaricæ ʒ ii.
Succī Limonum ʒ iss.
Sacchari ʒ i.
Aquæ ʒ ii. Misce.
To be used as a drink.

Continue the rest of the treatment.

14th.—Feels better. Urine is not so highly acid, but is slightly turbid with urates. Reaction of perspiration, saliva

and lachrymal secretion, acid. Vomited this morning (probably from the action of the Morphia.) Has no pain in the joints of the left hand, and wrist, but pain continues in the knees, ankles and joints of the toes.

Respiration is shallow, 26 per minute. On auscultation, the friction sounds of the pericardium are faintly heard; the endocardial bruit is distinct with the first sound of the heart: the second sound is unaffected. There are dry râles heard over the larger bronchial tubes of the right lung.

Continue treatment.

Milk diet, 2 pints of chicken broth, 2 pints of soojee and 1 of milk extra.

15th.—Feels better. The pains in the joints are less severe. Complains of a short dry cough when he takes a full breath, or speaks or moves his body. Skin is cool and covered with a slightly acid perspiration, urine is slightly acid. Bowels are regular.

Continue treatment.

16th.—Is restless and has an anxious expression of countenance; has considerable dyspnoea with a sense of constriction in the chest. On auscultation, the heart sounds are confused and irregular: a soft endocardial bruit is heard with the systole loudest over the nipple. The second sound is unaffected. There is no pericardial affection. Has pain and at times palpitation of the heart. Has also cough attended with difficult, scanty expectoration of clear, tenacious mucus. The pain in the joints is not severe. Urine is highly acid, scanty and contains a slight deposit of urates. Bowels have not been moved.

R. Potassæ bicarbonatis gr. xxv.

Succi Limonum ʒ ss.

Aquæ ʒ ss. fiat haustus.

Every 2nd hour.

Apply a circular blister 2 inches in diameter above the left nipple, continue the lime water and milk, Imperial drink, spongio-piline and nitrate of potass to the painful joints, and hypodermic at bed time.

Evening.—Still continues restless and anxious. Has headache.

17th.—Feels better. Pain in the chest is less. Complains of cough which is attended with tenacious, clear mucous expectoration. At present, has no pain in the joints except

in those of the right hand. The knees and ankles, however, are still swollen. The heart's action is not so rapid or tumultuous. Urine is larger in quantity, clear and perceptibly acid.

Continue treatment.

18th.—Is better this morning. Urine is alkaline. Has slight pain in the joints of the right hand. Bowels regular.

Evening.—Has much pain in both knees, ankles, elbows and wrists. The joints are hot, swollen and tender to the touch. Has no pain in the region of the heart, apply spongio-piline and nitrate of potass to the painful joints.

19th.—The joints of the fingers and toes are swollen and painful; the wrists and ankles are not so painful. Urine is slightly acid.

Continue treatment.

20th.—The pain and swelling of the knees have subsided. The pain has returned to the left ankle. Has no pain or uneasiness in the chest. There is still a slight endocardial bruit with the systole, bowels are regular. Tongue is slightly furred. Urine is slightly acid. Perspiration and saliva acid.

Continue treatment.

21st.—The pains in all the joints except those of the right hand are much less. Feels on the whole better, appetite is good, bowels regular: urine slightly alkaline, clear and passed in fair quantity.

Continue treatment.

22nd.—Is gradually improving. Urine is alkaline: reaction of perspiration neutral.

Continue treatment.

24th.—The right knee is swollen and painful: the right wrist and joints of the right hand are again painful. Otherwise feels better.

Continue treatment.

26th.—Is improving. The joints are all stiff but not painful except those of the right hand. Urine is alkaline. Omit all medicines. Opium liniment to the joints.

28th.—Is gradually gaining flesh and strength.

A case of acute Rheumatism with cardiac complication treated successfully with alkalis in combination with lime juice, with hypodermic injections of morphia, with blisters to the region of the heart and with spongio-piline dipped in warm water and sprinkled with nitrate potass to the affected joints.

The attack occurred in a healthy subject as the result of exposure to cold and wet, and was marked from the beginning by strong febrile action with evening exacerbations, and by joint implication. On admission he complained of pain under the upper part of the sternum; this pain was accompanied by an endocardiac bruit, followed soon after by an aggravation of all the symptoms and the rapid development of a pericarditic attack. A large blister was immediately applied to the cardiac region, hypodermic injections of morphia were ordered at bed time, and large doses of the bicarbonate of potass—combined at first with antimonial wine, and subsequently with lime juice—were pushed day and night, until the force of the disease was broken. Immediate relief to the cardiac symptoms followed the rising of the blister. The rheumatic action, however, continued active in the joints; threatened to implicate the peritoneum, and, on several occasions friction sounds with pain, dyspnoea and cough returned to the pericardium; as the pericardial friction sound subsided, the endocardiac bruit became again audible, though less distinctly so than at first. By degrees the cardiac uneasiness and palpitation subsided, the cough became less troublesome, and, with a resuscitation of pain, heat, and swelling of the joints, the more pressing symptoms disappeared. The attack lasted in all 25 days; when in hospital the temperature showed morning depressions with evening increments. The evening temperatures, on one occasion only, reached 103° F., namely on the 16th of February, on which date the cardiac symptoms were severe, whilst the local affections were only slightly marked.

A case of Enteric fever. Recovery. Reported by Senior Student H. NAILER.

F. L., aged 10 years, was admitted on the 26th December 1872, suffering from fever of ten days' duration. He states that during this period, the fever occurred daily, at irregular hours; that the attacks were not preceded by rigors or marked by intermissions. He was treated as an out-patient till the 24th December, but the symptoms becoming worse he was admitted to Hospital. At present his skin is dry and hot, temperature, 104° 2 F; pulse small, quick and compressible; tongue thickly coated with a brown fur; his bowels have been constipated for the last two days.

R. Pulveris Rhei Compositi gr. xl.
Aque Menthae Piperitæ 3 i.

Misce fiat haustus. To be taken immediately.

R. Tincturae Aconiti m ss.
Liquoris Ammoniae Acetatis 3 i.
Aque 3 i.

Misce fiat haustus. To be given every 3rd hour, till the skin acts.

R. Quiniae Sulphatis gr. v.
Acidi Sulphurici diluti m v.
Aque 3 i.

Misce fiat haustus. To be given when the skin is cool. Ice to be applied to the head.

Body to be sponged with tepid water and vinegar.

Diet:—Milk—Port wine, 4 oz; eggs, 4; beef tea, 1 pint; sugar, 1 oz.

28th December.—Patient was delirious last night. Head was very hot. Tongue this morning is brown and dry. Bowels inactive.

To have the cold pack at noon.
R. Olei Ricini 3 vi.
Aque Menthae Piperitæ 3 ss.
Misce fiat haustus.

To be taken immediately.
R. Liquoris Ammoniae Acetatis. 3 i.
Misturae Comphoræ. 3 ss.
Misce, fiat haustus. Every 2nd hour.
Ice to be continued to the head.

29th December.—The temperature has risen to 104° 5 F. Patient was very restless during the night. Looks prostrated, pulse is small and quick.

Repeat the pack twice to-day if required.
R. Acidi Nitro-Hydrochlorici diluti m viii.
Tincturae Cinchonae Compositae m x.
Aque 3 i.
Misce fiat haustus, every 4th hour

30th.—Temperature 102° 6 F. this morning. Bowels moved twice last night. Tongue moist and slightly red.

R. Acidi Hydrochlorici Diluti m viii.
Potassae Chloratis gr. ii.
Aque 3 ss.

Misce, fiat haustus. To be given every 4th hour, day and night.

31st.—Passed a bad night starting up and screaming when touched. Bowels were moved three times. The temperature is the same. Tongue dry, brown and hard. Lips, teeth and tongue are covered with sordes. Has been coughing during the night. Moist mucous rales can be detected over the posterior aspects of both lungs.

Apply a sinapism to the chest for twenty minutes, to be followed by a bran poultice.

Continue the mixture every 4th hour day and night.

1st January 1873.—Was delirious during the night. Cough has increased. Hypostatic congestion of both lungs has set in. Temperature $104^{\circ}8$ F., pulse 142.

R. Vini. Ipecacuanhæ $\mathfrak{m}$ viii.
Tincturæ Cinchonæ Compositæ $\mathfrak{m}$ xv.
Acidi Hydrochlorici diluti $\mathfrak{m}$ viii.
Potassæ Chloratis gr. v.
Aquæ 3 ss.

Misce fiat haustus, every 4th hour till skin acts.

2nd.—Temperature has fallen considerably. Slept a little during the night. Omit the Aconite mixture. Nourishment to be given every alternate hour. Wine to be given in the form of flip.

Diet.—Milk, Port wine 8, oz.; Ice, 4 lbs, Eggs, 6, Beef tea, 2 pints; Sugar, 1 oz.

3rd.—Bowels moved three times during the night and twice during the day. Was insensible during the night. Temperature $104^{\circ}8$ F.; pulse small and weak; 124, respiration, superficial; 44.

Bran poultices to be applied to the chest every 2nd hour day and night.

R. Ammoniac Carbonatis gr. v.
Quiniæ sulphatis gr. vi.
Acidi sulphurici diluti $\mathfrak{m}$ v.
Aquæ 3 i.

Misce fiat haustus. Every 3rd hour day and night.

4th.—Was very restless during the night, crying and rejecting his food and medicine. Bowels were moved twice last night in bed. Temperature 103° F.; respiration 36.

Continue medicine. Nourishment to be given every alternate hour.

5th.—Is very low. Pupils dilated. Patient is unconscious.

Apply a blister to the nape of the neck.

6th.—Was very restless last night. Bowels were moved four times yesterday, not at all during the night. His skin was slightly cool during the night, pulse 120; respirations shallow, 32.

Keep blister open. Continue treatment. Apply ice to the head. Sponge his body with tepid vinegar and water.

7th.—Was moaning all night. Bowels moved once. Pulse 112; respiration 28. Tongue clean and moist. Continue nourishment and medicine.

8th.—Bowels moved once during the night. Was conscious. Breathing rapid and shallow, 32; lung sounds are clear; pulse small and weak, 120; there is great dilatation of the pupils and slight cough. Patient looks prostrated.

R. Ammoniac Carbonatis grs. v.
Aquæ 3 i.

Misce fiat haustus. Every 3rd hour.

9th.—Patient was conscious last night and irritable; coughed several times. His head feels hot; pupils are dilated. Complains of pain in the abdomen and cries when passing urine. Pulse, 128; respiration, 36.

Remove the bran poultice and apply turpentine stupes to the abdomen.

10th.—Was restless during the night. Bowels moved once. Suffers from tenderness over the abdomen; urine is slightly acid.

Bran poultices to be applied to the abdomen every 2nd hour preceded by turpentine stupes.

12th.—Slept pretty well last night. Bowels were not moved; tongue brown and moist; respiration continues shallow and rapid; skin cool; pulse quick 124.

Continue treatment.

14th.—Slept well last night; had no cough; bowels moved once. Patient recognizes and talks to his attendants. Pulse, 130; respiration, 28.

15th.—Slept well last night; bowels were not moved; had no cough.

To have a warm water enema.

Increase his wine from 8 to 10 oz.

16th.—Slept well last night; had no cough; bowels were moved once yesterday; pupils are slightly dilated.

Continue treatment.

17th.—Looks cheerful; eats and sleeps well; bowels inactive.

Continue warm water enema.

Reduce his wine to 8 oz and eggs to 6.

20th.—Improving gradually. Patient is able to sit up in bed, and takes his food well. Tongue moist and slightly coated.

23rd.—Had slight heat of skin last night. A few boils have appeared on his body. Recovering strength.

Reduce his wine to 6 oz.

February 6th.—Has had no fever for the last two weeks. The boils have disappeared; appetite and strength have returned; bowels regular; tongue clean; convalescence fairly established.

Discharged.

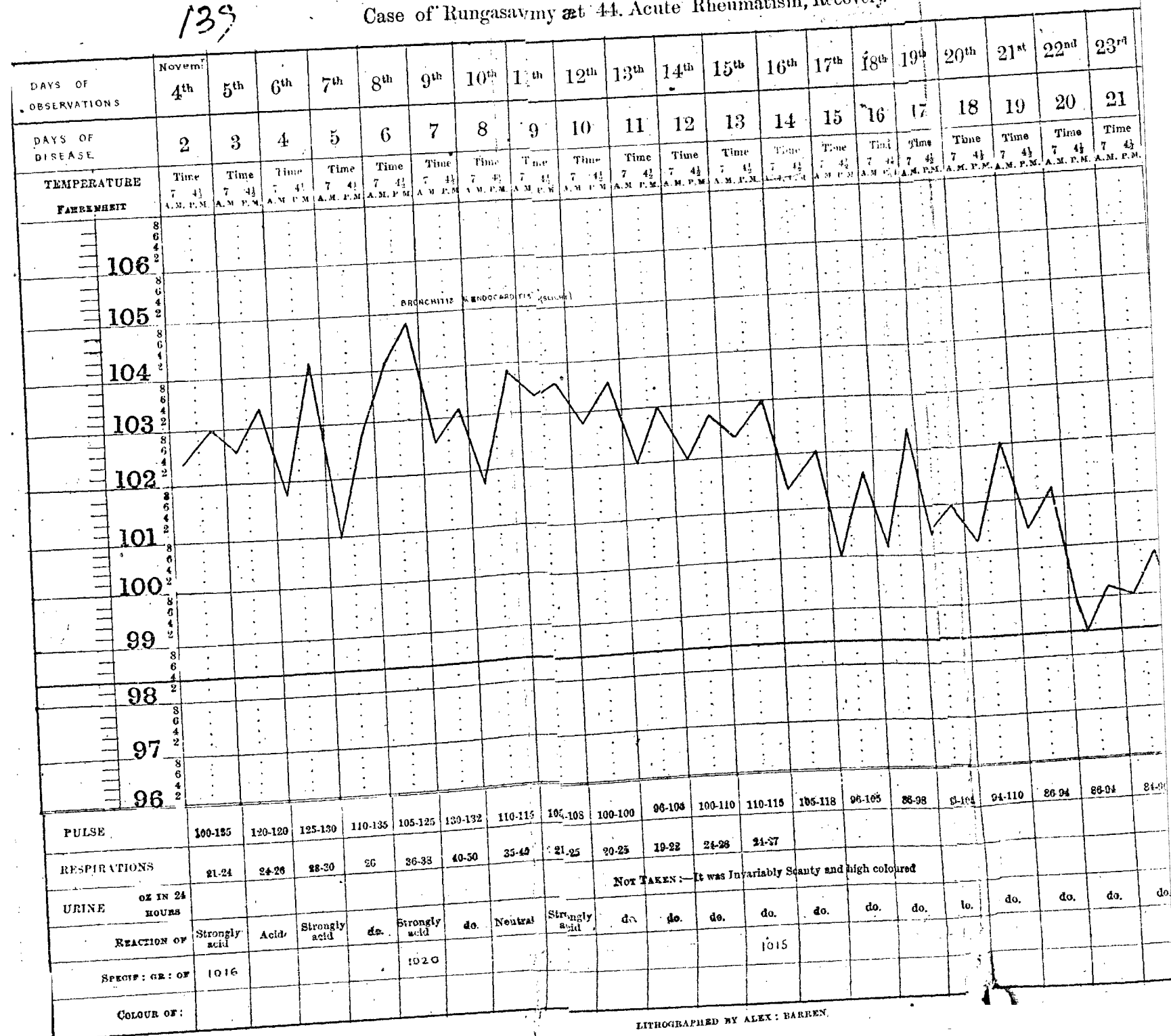
[NOTE.—The temperature was not noted in this case owing to an accident to the clinical thermometer.]

A case of Acute Rheumatism. Reported by
Senior Student J. LANCASTER.

Rungaswamy, aged 44 years, by occupation a butler, was admitted into hospital, on the 3rd November. He is a stout well built man, and like the majority of his class, of very free habits. He states that a fortnight ago, after returning from a long walk, he indulged freely in arrack and then imprudently exposed himself at night to a damp, chill monsoon wind. The following day he complained of stiffness and pain in the right knee which soon became very severe. He now lies quite helplessly on his back, with a dread of being disturbed in the slightest manner, and suffering acutely from pain in the right knee, which is swollen, pungently hot and so sensitive that the mere weight of the bed clothes is intolerable. The constitutional disturbance is marked, the temperature in the axilla is 103.4, the tongue is very foul, being thickly coated from base to apex with a dirty white adherent fur; the perspiration over the surface of the body is scanty but rather more free in the axillæ and flexures of the larger joints; it is strongly acid, reacting on litmus like dilute sulphuric acid and has a disagreeable, powerful smell.

The urine is scanty, clear at first but soon depositing a copious pink sediment; it is strongly acid: sp. gr. 1016.

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RECORDS OF TEMPERATURE, PULSE, RESPIRATION, EXCRETA.
Case of Rungaswamy æt 44. Acute Rheumatism, Recovery.



The pulse is small and rapid, 125; the respiration is hurried. On auscultating the cardiac region, no abnormal sounds can be heard. Diet.—milk: Soojee—one pint.

R. Pot. Bicarb. gr. xxv.

Vini Antimonialis xl.

Aquæ tepidæ oryzæ 3 iv.

Misce, fiat haustus. To be given every 2nd hour day and night.

To have 10 m., of a solution of Morphia (4 gr. to 3 i) morning and evening hypodermically.

5th November.—Passed a restless night; the left knee and ankle are inflamed; had strong fever last night; urine scanty and very acid; perspiration scanty and acid.

Continue treatment.

6th.—The joints of the right lower extremity are all affected; they are swollen and acutely painful; the left knee is stiff and painful; perspiration scanty and acid; respiration hurried and shallow; bowels constipated.

Continue alkaline mixture.

To have the larger joints covered with warm spongiopiline freely sprinkled with finely powdered Nitrate of Potash. Had a saline purgative.

7th.—Slept well; both shoulders are affected: urine and perspiration slightly acid.

Continue treatment.

8th.—Shoulders, elbows and wrists very stiff and painful; The respiration is hurried and shallow; complains of pain in the chest; his breathing is wheezy; coarse mucous rales over the larger bronchi; expectoration scanty and viscid.

Continue treatment.

Diet—Milk-soojee one pint—Chicken broth, 2 pints.

9th.—Was restless all night; complains of severe pain in the chest; the breathing is hurried and shallow; mucous rales over the larger bronchi and a short but inconstant endocardial murmur over the precordial region are heard; has strong fever; urine strongly acid and scanty.

Iodine pigment to chest.

10th.—Respiration hurried and wheezy; oppression in chest increased; sputa scanty and muco-purulent; urine neutral.

Oint alkaline mixture and hypodermic injection.

Continue spongiopiline to the larger joints.

Give a saline purgative.

R. Liq. Ammoniac Acet ʒ iii.

Vini Antimonialis ℥ x.

Tinct. Scillæ ℥ xv.

Aquæ ʒ ss.

Misce, fiat haustus.

To be given every 3rd hour.

Bran poultice to chest.

11th.—Slept well last night: the oppression in the chest is less; the respiration is easier and less embarrassed; the endocardial murmur still continues, but is less distinct. The pain in the joints of the lower extremities is less acute.

R. Pot. Bicarb gr. xxv.

Aquæ tepidæ oryzæ ʒ iii.

Mist. fiat haustus.

To be given every 3rd hour day and night.

12th.—Is better; pains less acute; no oppression in chest; breathing easier; no cough; urine acid; perspiration scanty and acid.

Continue treatment.

13th.—No change.

14th.—Is improving; general stiffness of the joints. Perspiration and urine slightly acid; no pain in the chest.

15th.—Pain in the smaller joints rather acute; larger joints less painful; perspiration and urine slightly acid.

16th.—Is better; no pain in chest; no cough; respiration hurried but easier.

R. Pot. Nitratis gr. x.

Aq. tepidæ oryzæ ʒ iii.

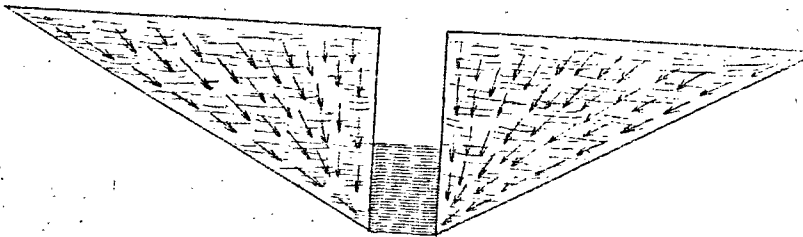
Mist. fiat haustus.

To be given every 3rd hour day and night.

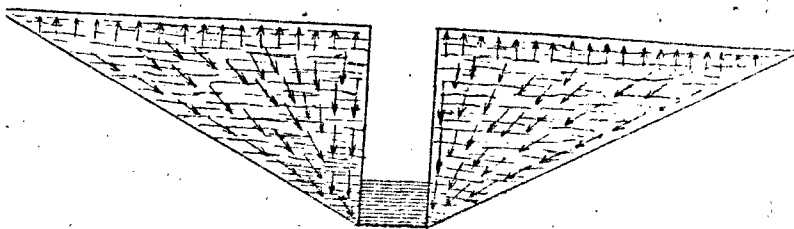
Continue spongio-piline to the larger joints.

He did not complain of acute pain after this, but merely of a stiffness and uneasiness in the joints which varied more or less with the state of the weather; when the cool, damp monsoon winds blow after a heavy shower, he invariably complained of a dull aching pain in the knee and ankle joints, and stiffness in all the smaller joints. His appetite rapidly improved; the skin became cool and moist and the urine normally acid; he had become very thin during the first few weeks, but he, however, rapidly regained flesh and was discharged on the 30th December 1872.

(A)
Well in rainy season



(B)
Well in dry season



ON POTABLE WATERS.—PART III.

BETWEEN 1866 and 1872 the drinking waters of all the principal stations in the Bengal Presidency were examined and reported on by itinerant water-analysts, mostly young Assistant Surgeons who had learned the process under Dr. Parkes at Netley. In 1871-72 the waters of this Presidency and of British Burmah were similarly examined. The Bombay Government made no special arrangement of this kind, but samples of the waters of their stations were sent to Bombay and analyzed in the laboratory there. Having seen all these reports, and glanced over the tables of results, we cannot help wondering at the comparatively small amount of organic impurity in our Indian waters. Take an average well in an average station, and consider where its water has come from. It consists, to begin with, of a proportion of the rain and of the various watery solutions that have fallen on the surrounding surface. The area of this surface varies with the nature of the soil and the depth of the well. A reference to the two accompanying diagrams will make its subsequent course somewhat clearer.

In (A) the state of matters during the rainy season is depicted. The direction of the arrows is the course which the water takes from the surface towards the bottom of the well. Here, there is no distinction of soil and subsoil as far as the water is concerned. It is assumed for the sake of simplicity, that the well is sunk in a homogeneous rock of average porosity. In (B) we have the condition of affairs during the dry weather. Here we have water currents upwards near the surface, and downwards at a greater depth, the position of the plane of no move-

ment varying with the season, the nature of the soil and other circumstances.

The relation between the rain-fall and level of the subsoil water is well seen in the register kept at Calicut in 1871-72. The soil and subsoil are laterite and very porous so that the rain is sucked up nearly as fast as it falls. The well selected for the observations was within the new jail, on a raised mound, about thirty feet above the surrounding country. About the beginning of May 1872, that is about the end of the dry season, the depth from the mouth of the well to the surface of its water was $34\frac{1}{2}$ feet. There were one or two heavy falls of rain during May and the water in the well rose nearly a foot. Thirty-three inches of rain fell in June and the water-level rose 89 inches. Hence for every inch of rain-fall the water in the well rose nearly three. This will be understood if the laterite is regarded as consisting of an immense number of capillary tubes placed more or less vertically, the walls of the tubes filling two-thirds of the entire space. Suppose some of the tubes removed to represent the well, and 33 inches of water poured slowly and steadily over the surface. Suppose also that it is all absorbed, that is sinks down among and within the tubes. Each inch will evidently represent a rise of three of the general water-level, and, therefore, of the level of the well water. But the laterite may be represented by capillary tubes in another sense. It is not strictly correct to say that the level of the well water is the same as the level of the subsoil water. The latter is always much higher than the former in consequence of the action of capillary force opposing that of gravitation which tends to reduce the depth inside and outside the well to the same level. Hence the level of the well water rises and falls with that of the subsoil water, but it is always lower than it. This is indicated in the diagrams.

While the rains last, the water tends from the surface of the ground to the bottom of the well, but as soon as they are over another action comes into play. The sun begins to act powerfully on the ground: its surface gets dried by evaporation and in this state it acts as a dry sponge does, when only half of it is immersed in water. The water beneath the surface begins to rise, and this action extends its influence deeper and deeper as the hot season advances. Going back to the assumption of the capillary tubes, the water in and surrounding their upper ends is slowly removed, the downward pressure of their water is slowly lessened, and as slowly the level of the well water falls. Hence in diagram (B) the water currents are made to pass upwards and downwards. During the last two years the level of the subsoil waters has been daily observed in six stations of this Presidency. The curved lines showing the changes in the levels rise more or less abruptly during the three or four months the rains last, while they fall gradually during the remaining eight or nine. Rain-water is almost quite pure, and well waters are more or less pure, but between the air and the well, the water, in very many cases, passes through a filthy stage. There are numerous wells within and immediately surrounding most sepoys' lines, and it may be safely assumed that three-fourths of the surface soil through which their water has to pass is being constantly saturated with foul matters of all kinds. The rain passing through this stratum dissolves and carries down much organic impurity and much saline matter. How is it then that, as a rule, we do not find much of this organic matter in the wells? If we look at a porous soil on which a heavy shower is falling after a period of dry weather we see bubbles of gas rising. Much of this gas is oxygen. Oxygen is the world-wide

purifier in air, and water, and earth. Professor Liebig and Dr. Angus Smith have shown that porous soils have a great tendency to absorb oxygen from the air, and that it keeps a store of that oxygen always ready to be imparted to the water and to all organic impurities passing through the soil along with the water. Hence it is that "any thing of a putrefactive kind that once gets into the ground is very speedily got past the stage of putrefaction; in other words, ceases to putrefy, and becomes deodorised by that greatest of disinfecting agencies. Hence it is also that, as Dr. Smith has shewn, the subsoil of our towns and villages is preserved to a considerable extent, from becoming, as it would otherwise invariably do, one great mass of corrupting organic materials." In many cases, however, the oxygen cannot overtake all the work required of it. The quantity of impurity poured into the soil is too great. Thus, there is always considerable danger, not only to the workmen, but also to the surrounding inhabitants when an excavation of any kind is being made in London. When digging for the water-pipes in the more densely peopled localities of Madras, the soil has been found as "black as ink," and "stinking abominably."

Is it not clear then that all waters that have had to run this gauntlet on their way to wells must be dangerous waters? The wonder is that they are not all chemically bad. Many of them have been shown by the analysts to be decidedly bad.

Waters containing decomposing organic matters are not only dangerous because of these matters, but because when these are present the specific poisons, which cause cholera, and typhoid, and dysentery and many other diseases may be present too. Where the one class gets the other class can get also.

* Dr. W. T. Cairdner.

This is the prime reason why a water containing organic matters should be rejected. Cholera stools and typhoid and dysenteric discharges are thrown by the careless native on the ground at his very door. What is to prevent these passing into the wells in the neighbourhood, if these wells contain other organic matters? It is well sometime to recall old experiences. In 1854 five hundred persons in a district numbering less than four thousand died in three days from cholera after drinking contaminated water. The district was in London, and the well became notorious as the Broad Street pump. It was proved that a child, living in a house close to the pump, died of diarrhoea. It was found that a communication existed between the pump and a cesspool into which the child's evacuations were thrown. The cholera epidemic followed immediately after the contamination. Only those who used the pump water were attacked. As soon as the pump was closed the epidemic ceased. The evidence was without a flaw. There have been more recent experiences of a similar kind but this one is enough.

But there is another way, in which organic matter does, and specific poisons may, get into our station wells. We know that organic solids do not undergo much chemical change so long as they are perfectly dried. We also know that microscopic animal and vegetable organisms can retain their vitality in a dormant state for months when deprived of all moisture. We may safely assume that specific poisons will keep for a long period under the same circumstances. In this country we have months of dry weather. Clouds of dust are flying about for a great part of the year. Much of this dust is organic. A cholera discharge rapidly dries up at this time and some of it is carried along as dust. An exposed surface of water, as that of a tank, is con-

stantly absorbing these dust particles. When they enter the mouth of a well they are very liable to fall in the still atmosphere there met with. Professor Tyndall has shown that the finest dust particles will slowly fall through perfectly still air.

Waters not liable to much contamination from this kind of dust, as those of tanks, lakes and wells at a distance from populous towns or villages, are all the better of being exposed to the action of the wind, but we think that there is more harm than good done by such exposure when the waters are close to houses. We hope soon to see our best wells fitted with water-tight covers, with pumps adapted to them, so that the waters can only be drawn from stopcocks placed some feet or yards from the well mouths. There is not a station in this Presidency in which all the recognized wells are properly finished. We do not refer to covers, as we do not see much good but some harm in the ordinary covers which are opened and shut at all hours. They only enable people to sit over wells instead of standing at the side of them. Parapets, proper sloping platforms, and good drains to carry off spilled waters are all more or less wanting. There are some who think and write that Government has done quite enough in the way of sanitary improvement. We believe that such thoughts are wrong and such writings are barbarous.

A BOON SOLICITED.

We place before our readers a letter from the Secretary of State for India to the Governor-General, in which certain facilities for passing examinations and improving themselves in professional knowledge,

are held out to the Officers of the corps of Engineers. The following is the letter referred to:—

No. 249 of 1873. The following Military Letter from the Right Honorable the Secretary of State for India, is published for general information:—

India Office,
London, 30th January 1873.

Military. No. 14.

To,

*His Excellency the Right Honorable
the Governor-General of India in Council.*

My Lord,

1. I have received and considered in Council your Military Letter No. 200 of the 26th September 1872, containing proposals to enable officers of Royal Engineers employed in India to qualify for the military examinations prescribed by Horse Guards General Order, No. 52 of 1872, to be passed previous to promotion.

2. In reply I have to acquaint your Government that I have sanctioned the following arrangements:—

I.—That Royal Engineer officers in the Public Works Department in India may be allowed to take special leave for three months in India on full pay, in order that they may be attached to some corps for military duty, such leave to be considered as service in all respects.

II.—That all Lieutenants and Captains of the Royal Engineers, when on furlough in England shall be allowed, in addition to their furlough, to spend a certain time on duty at the school of Military Engineering at Chatham, drawing English pay and extra pay as laid down at page 45 of the Revised Army Regulations, together with servant's allowance at the rate of 1s. 6d. a day.

The "certain time" above referred to is to be a maximum of six months after the first eight years of service in India qualifying for furlough, and three months after the second period of six years.

The time passed at Chatham, on duty, will not be allowed to reckon as a qualification for furlough.

Officers on furlough, who may prefer to spend a part of their furlough at the school, will not be subject to any reduction of their furlough pay.

III.—That the same advantages be accorded to officers of Royal Engineers on leave on medical certificate, the time to be

passed at Chatham in their case being regulated on the above principles, the period, however, not being less than three months.

3. In accordance with the suggestion of Lord Napier of Magdala a certificate of proficiency will be required in all cases to authorize the time passed in study at Chatham to count as service in India.

In behalf of the other scientific and not less important Corps of the Army and public service, we venture to suggest, for the favourable consideration of the authorities, both in India and England, that some similar indulgence be extended to its members also.

For Assistant Surgeons who are desirous of qualifying, in India, for promotion to the rank of Surgeon, we would ask the indulgence of six months' leave, on full pay, to enable them to attend lectures, at the local Medical College, on those branches of medical knowledge which are made the subjects of examination.

Should officers be inclined to qualify and pass in England, we would ask the favour of their being allowed to qualify at Netley, for one session;—the period spent in such preparation to be in addition* to their furlough and on furlough pay.

For officers of the rank of Surgeon and Surgeon-Major, we would solicit the indulgence of six months' leave, in addition to furlough or sick leave, to enable them, if so disposed, to attend any of the British or Continental Schools of medicine, with the view of keeping themselves abreast with the times. This additional leave should be on furlough pay and should not interfere with an officer's lien on his appointment. The period thus spent at College, should, we think, be reckoned as furlough.

For Professors of the various Medical Colleges, we think we are not asking too much, when we beg the boon of an additional year to enable them to become fully acquainted with the progress of medical science in Europe. The extra year thus spent should

be on furlough pay and without the loss of appointment. The Government will be justified in adopting means for ascertaining that their indulgence is not misapplied, and insisting on the production of certificates from the Professors whose lectures and practice the Indian Medical Officers may have attended.

The concessions we have here roughly indicated will conduce to the improvement of the service to which we have the honor to belong and will prevent its members from feeling, after a few years' service, that they have dropped behind the times. We ask for no more than has been conceded to our brother officers of the Corps of Engineers and we have every hope that, should the authorities hear of our wishes, they will be only too glad to place facilities in our way for becoming better qualified for the discharge of our onerous professional duties than we are likely to be, after years of isolation and separation from those who are always engaged in advancing professional knowledge in Europe. We respectfully commend these remarks to the consideration of those who are interested in the welfare and efficiency of the Medical service in India.

REVIEWS.

The Thanatophidia of India being a description of the venomous Snakes of the Indian Peninsula. By J. FAYRER, M. D., C. S. I., F. R. S.

THIS is a magnificent work. Dr. Fayrer's name is a sufficient guarantee for the excellence of its *matter*, Churchill's for that of its *manner*. The letter-press is printed in large type, strikingly clear and distinct, on paper of beautiful quality. The illustrations are chromo-lithographs and examples of the highest delineative Art. Evidently, no effort and no expense have been spared to render the book attractive and entertaining as well as instructive, and if accurate limning and beautiful coloring can render snakes a pleasant study, this volume should be a great success. We heard one enthusiastic admirer of ophidian reptiles, when turning over the richly colored plates of the work, argue that snakes are as beautiful objects as roses, and, though unprepared to go quite so far, we are free to acknowledge that the artist has done his best to make them such.

In the First Section of his book, Dr. Fayrer treats of "the Zoological and Anatomical characters, Habits and Distribution" of Indian Thanatophidia, of which there are but *fifteen* genera,—*nine* belonging to the Colubrine families Elapidæ and Hydrophidæ, and *six* to the Viperine, Crotalidæ and Viperidæ. This division is replete with information, given in a style that interests, as well as instructs the reader. Thus describing the maxillary bone he writes:—"In the Viperine Snakes, in which the poison-fangs are very large, the degree of mobility is remarkably great, and the snake, when irritated and about to strike, gives then a peculiar and independent vibratile movement which is very striking. In them the natural position of the fang is the recumbent one. When the snake strikes, and as it opens its mouth, the maxillary bone is pushed forward, and the fang is erected. The poison-fangs are described as grooved or perforated teeth, but, strictly speaking, they are not so. Like other teeth, they are solid, composed of dentine and cement, but they are folded over so as to form

a cylinder in some cases; in others an open groove. It is as though you took a leaf and folded it longitudinally until its edges overlapped to form a tube, or approached each other so as to form a groove. The various degrees of involution are represented permanently in the fangs of different poisonous snakes. For example, in the Hydrophidæ the fang is only so folded as to form an open groove; in the Elapidæ the canal is a tube; in the Viperidæ it is even more so, all appearance of the involution having disappeared."

The *second* section contains some valuable remarks on the "Deaths by Snake-bite in the Bengal Presidency during 1869," followed by several tabular returns of mortality from that cause in Bengal Proper, Assam, the North-west Provinces, the Punjab, Oude, Orissa, Central India, and Burmah. These returns "make it clear that in order of destructiveness, the Cobra occupies the *first* place in the list; the Krait (*Bungarus cœruleus*) occupies the *second* place, whilst under the headings of 'other snakes and unknown' must be included many deaths due to Cobra, *Bungarus cœruleus*, Hamadryad, *Daboia*, *Bungarus fasciatus*, Hydrophidæ, and some perhaps to *Echis carinata*, and the Trineesuri; though as to the last, there is reason to believe that deaths from their bites are comparatively very rare."

"The treatment of snake-bite" is the theme of the *third* section, and the intensely practical interest of the subject "is a temptation to larger extracts than our own space permits. One, however, we feel, constrained to give.—"I would" says the author, "summarize the treatment of snake-bite as follows:—Apply at once a ligature, or ligatures, at intervals of a few inches, as tight as you can possibly tie them; and tighten the one nearest to the wound by twisting it with a stick or other such agent, scarrify the wound and let it bleed freely. Apply either a hot iron or live coal, or explode some gunpowder on the part; or apply either Carbolic or some mineral acid, or caustic. Let the patient suck the wound whilst you are getting the cautery ready, or if any one else will run the risk, let him do it.

If the bite be on a toe or finger, especially if the snake has been recognized as a deadly one, either completely excise, or immediately amputate at the next joint. If the bite be on another part where a ligature cannot be applied, or indeed if it be on the limbs above the toes or fingers, cut the part out at once completely.

Let the patient be quiet. Do not fatigue him by exertion. When or even before symptoms of poisoning make their appearance, give eau-de-luce, or liquor ammoniæ, or carbonate of ammonia, or even better than these, hot spirits and water. There is no occasion to intoxicate the person, but give it freely, and at frequent intervals.

If he become low, apply sinapisms and hot bottles, galvanism or electro-magnetism over the heart and diaphragm. Cold douches may also be useful.

The antidotes in addition, may be used by those who have faith in them; but as I have said, I fear there is no reason to believe that they are of any use. Encourage and cheer the patient as much as possible. As to local effects, if there be great pain, anodynes may be applied or administered, and antiseptic poultices to remove sloughs; collections of matter must be opened.

Other symptoms are to be treated on general surgical principles.

This, I believe, is the sum and substance of what we can do in snake-bite. If the person be not thoroughly poisoned, we may help him to recover. If he be badly bitten by one of the more deadly snakes, we can do no more."

Twenty-five years ago Dr. J. W. T. Johnstone, one of the earliest private practitioners in Madras, and an earnest investigator of scientific truth, devoted considerable attention to the treatment of snake-bite, and we remember his informing us that the only measure he found successful was early and complete excision of the bitten part,—a conclusion fully corroborated by the researches of Dr. Fayrer, quarter of a century subsequently. The antidote to snake-poison is yet to be found. We did hope that Dr. Shortt had discovered in Liquor Potassæ a material which would effectually neutralize the venom of the Cobra, but our hopes have been dissipated by the author of this volume, who failed in his experiments with this alkali to neutralize its poison-properties, although mixed with it in even more than equal quantities.

The *fourth* Section. contains a dread array of "cases of snake-bite," in which not only the appalling symptoms are detailed, but also the *post-mortem* appearances of the blood and tissues of the body are given. This division of the work is full of pathological interest, notwithstanding the discouragement and despair, with which one reads case after case, whose almost invariable result is death.

The *fifth*, and last, section is occupied with "experiments on the influence of snake-poison on the lower animals, and on the value of certain modes of treatment and reported antidotes." These experiments were commenced in October 1867 and continued from time to time through the three subsequent years. They bear esoteric evidence of carefulness in their performance, and studied accuracy in their record, so that they cannot but command the credence and confidence of all who read them. Would that they led to more encouraging conclusions! One stroke of the poisoned fangs, one drop of the lethal venom deposited within or below the skin of a living man, and that man a corpse in a few minutes, or at most a few hours! Such is the brief and rapid sequence of weird events, recorded, in the last part of this beautiful book, the graphic style of which serves to render a most uninviting subject actually entertaining as well as interesting. We have no doubt that a work, so elaborate and so perfect, will obtain the success it deserves.

Saint Bartholomew's Hospital Reports, Volume VIII.

We resume our notice of this Volume. Dr. Dyce Duckworth contributes a paper on skin diseases. In a note, he states that he has employed simple inunction with olive oil, in several obstinate cases of psoriasis, with great benefit to the sufferers. A patient of his had been treated, for this affection, with many internal and external remedies; but as she derived no benefit therefrom, she tried olive oil inunction on the recommendation of a neighbour who had seen it used in Germany. She was cured in a few weeks. Dr. Duckworth believes that most cases of psoriasis are curable by pitch inunction and the administration of arsenic; but when these remedies cannot be borne, he recommends inunction with olive oil.

Mr. Alfred Coleman contributes a paper on degeneracy of the teeth. Assuming that the teeth of the present generation of Englishmen, are less sound than those of their forefathers, he offers two explanations of the fact, the first being a crowded condition of the teeth, arising from imperfect development of the dental arches among civilized races, and, the second, imperfect employment of the teeth, from long continued use of soft food. Mr. Coleman is inclined

to deplore our present notions of beautiful teeth. As a practical dentist, he writes as if he condemns us for admiring small white teeth crowded together in the dental arches of pretty little jaws. His leanings are evidently towards prominent tusks growing out of powerful jaws, the prognathous mouth in short. Mr. Coleman will find such ideal beauty among our Ethiopian brethren; but it would be unfortunate if he realized it in practice, as his occupation would then be gone.

Mr. Coleman is strong in his remarks about soft food producing degeneracy of the teeth of the present generation. He pictures before the reader, the hard bread of early ages which required an immense effort to masticate and the tough meat which required to be torn from the bone by the incisors and canines, a style of food which found ample employment for incisors, canines and molars; but we, unfortunate victims of civilization, replace the front teeth by the indispensable knife and fork and scarcely give the molars any work, because the cook, by his skill, makes mastication easy. Mr. Coleman warns us that, if we go on in this civilized way, we shall, in a few generations, become edentulous; but what of that, we shall have mincing machines to do the work of chewing, our babies will be spared the pain of teeth-cutting, and their mothers a world of anxiety.

Mr. Coleman thinks that soft food does not provide a sufficient stimulus to the gums which get spongy, unhealthy and allow the teeth to decay prematurely. He recommends that children be allowed to exercise their teeth on bones scantily covered with meat, that our food should be of such a quality as to oblige us to masticate it with much more force than we now employ, and that the tooth-brush should be freely used. We are not satisfied that Mr. Coleman has hit the right nail on the head. How is it that so many natives of this country who live on rice which, when boiled, scarcely requires to be masticated, are blessed with such sound teeth?

Mr. J. F. Nicholson contributes a case of injury to the cranium by a marble. The subject of the injury was a boy, five years old, who, whilst stooping to pick up a marble, fell down a staircase and wounded his left temple. The wound was jagged, and valvular and bled freely. The presence of the marble within the wound was not ascertained until the 26th day. On the 23rd day of the accident,

symptoms of brain mischief occurred. The marble was removed under chloroform. It was found that this body had gouged a hole in the skull. The space was, in time, filled up with membrane and the spot which had been trephined by the marble was marked by a depression about the size of a farthing.

Mr. Thomas Smith's article on tubercular disease of the urinary mucous membrane, deserves the attention of medical men. This affection "commences as a tuberculous infiltration of the submucous tissue of some part of the genito-urinary mucous membrane, probably most often first in the kidney." Persons of tubercular diathesis are liable to this, before the middle period of life. The subjects of this disease are liable to be considered as suffering from stone. In the early stage, there may be slight aching in the back, a little blood in the urine and occasional pain in testicle and glans penis. As the disease advances, these symptoms become more marked. Children pull the foreskin and pinch the glans penis, as they do when suffering from vesical calculus. The urine which, at first, contains nothing but a little blood and some epithelial scales, becomes loaded with pus, after a time.

"Abscesses may form in the foins, prostate, vesiculae, perineum, body of penis or testicle." As the disease is so apt to be mistaken for vesical calculus, our diagnosis can only be confirmed by sounding the patient for stone and determining the non-existence of vesical calculus. Treatment—opium or morphia for relief of pain, astringent preparations of iron and confection of black pepper to control bleeding—Cod-liver oil and Iron as constitutional remedies.

Dr. Wickham Legg records his observations on six cases of cirrhosis, examined by him in the post-mortem room of St. Bartholomew's hospital. He alludes particularly to certain views expressed by Liebermeister on the pathology of this disease, in an essay published in 1864. Liebermeister is in favor of the current view that the nucleated interlobular tissue, present in cirrhotic liver, owes its origin and growth to the connective tissue of the organ, and that, in proportion to the extent of this nucleated tissue, there occur compression and destruction of the structures within the liver, leading ultimately to obstruction of blood and bile vessels, consequent on which, we have ascites and jaundice. As many of the nuclei are arranged in lines and

grouped into clusters, he believes them to be the remains of blood vessels.

Lionel Beale, the well known English microscopist, holds that the capillaries between the portal and hepatic veins are destroyed and that the circulation is maintained by large vessels between these two sets of veins. The hepatic cells also undergo degeneration, those at the periphery of the lobule being the first to deteriorate.

Dr. Legg, after having examined, microscopically, sections of cirrhotic liver of varying thickness, thinks it highly probable that the hepatic cells are exclusively the agents by which the growth of the nucleated tissue is effected and he states that bands of this tissue break up the lobules of the liver into islets, while Liebermeister believes cirrhosis to be due to excessive development of the connective tissue of the liver, known among anatomists as Glisson's capsule. Dr. Legg's paper is an interesting one to pathologists who will be glad to hear that further observations are being made to determine the pathology of this disease.

Dr. Dyce Duckworth writes a paper on the nature and treatment of *Porrigi decalvans*. We were hitherto under the impression that a parasitic plant, the *Microsporon Audouini* was the active agent in the production of this disease. Dr. Duckworth, after much patient research, comes to the conclusion that the parasite is all a myth and that the so-called spores are nothing more than numbers of granulo-fatty particles. He has made very careful examinations of hair taken from the margin of the bald patches on the scalp and also of the few short club-shaped stumps that often stud the bald surface and has in no instance been able to detect anything like the spores of a parasitic plant. Some excellent plates illustrate Dr. Duckworth's observations. Our space is too limited for an abstract of Dr. Duckworth's paper, suffice it to say that the author believes *Porrigi decalvans* to be a "nutritional perversion" of the scalp, by which the hair follicles lose the power of producing hair. He recommends the employment of local stimulants and especially of turpentine which was first recommended by Professor Von Erlach, of Berne. Steel, cod liver oil and nervine tonics will answer best, as constitutional remedies, should baldness occur in pale, lean and weakly people.

MEDICAL MISCELLANY.

Richardson on the Preservation of Tumours and Urinary Deposits.

Dr. T. G. Richardson (*Philadelphia Medical Times*, Dec. 21, 1872,) states that a fluid drachm of urinary deposit added to two drachms of solid acetate of potash was entirely successful, after many failures with other solutions, in preserving hyaline, granular, or fatty uriferous casts during a long journey, up to the end of six weeks. For morbid growths, the author gives the following directions. Place a small fragment of any tumour or pathological structure, say a quarter to half an inch square and one-tenth of an inch thick, in a couple of drachms of saturated solution of acetate of potash, and allow it to fully imbibe the fluid by soaking therein for forty-eight hours. The solution referred to is best made by simply pouring half an ounce of rain-water upon one ounce of dry granular acetate of potash, in a clean bottle. When the tissue is thus freely saturated with this saline liquid, remove it by means of a pair of forceps, without much pressure, and insert it in a short piece of India-rubber tubing, or wrap it up carefully in a number of folds of thin sheet rubber or of oiled silk, tying the whole firmly at the ends with strong thread. When thus prepared, specimens can be inclosed with a letter in an ordinary envelope, and sent long distances, doubtless thousands of miles, by mail, without danger, on the one hand, of decomposition, because of the preservative power of the potassic acetate, or, on the other, of desiccation, on account of its exceedingly deliquescent nature.

One very important advantage which this plan has over those in which alcohol or glycerine is employed as a preservative agent is, that the menstruum has little or no effect upon the oil-globules contained in cells. Hence, by its aid we are enabled to recognize fatty degeneration in the cellular elements of a tumour, and easily to detect the same metamorphosis in the kidneys from minute oil-drops in the epithelium attached to tube-casts of Bright's disease, under circumstances where specimens preserved in glycerine or alcohol would afford a doubtful or wholly negative result.

Urinary deposits composed of oxalate of lime or of triple

phosphate are not, according to Dr. Richardson's experience, so readily preserved in solution of acetate of potash, as in a 20 or 30 per cent. solution of carbolic acid.—*Medical Record*.

Ulceration of os Uteri.

DR. GALLARD (*Mouvement Medical*, Jan. 11) says that ulceration of the os uteri such as he is about to speak of should be put out of the list of diseases and merely considered as one of the consequences of chronic metritis, or parenchymatous metritis. These ulcerations do not necessarily arise in metritis. When the mucous membrane is not ulcerated, it generally presents a red colour, which may turn to a whitish colour as the disease advances. The ulcerations which have been described under the names of *erosions*, *fungosities*, *exulcerations* are met with in about half of the cases of uterine inflammation. Bennet met them 230 times in 300 diseases of the uterus; Scanzoni met them 167 times in 216 observations, and they are so frequent that Aran says they are met with in one woman in ten. These ulcerations are from inflammation of the uterine mucous membrane. At first we see abundant leucorrhœa indicating a hypersecretion of the glands due to hyperæmia of the mucous membrane. This hyperæmia causes swelling of the glands which appear under the form of *granulations* which have been compared to pharyngeal granulations. If the secretion continues and the inflammation progresses, the secreted fluid becomes opaque, purulent, and larger granulations appear. The inflamed follicles are often numerous enough to touch at their edges and form an ulceration of a certain extent. When further advanced this becomes more prominent, for the papillæ situated beneath the mucous membrane inflame and become prominent. The papillæ may, in certain cases become still more salient and true fungosities appear.

The ulcerations we have just studied are attached by Dr. Gallard to chronic metritis, for they are never met with without meeting at the same time the body and neck of the uterus more or less enlarged and painful on pressure. And we may sometimes meet with chronic metritis without ulcerations but never ulcers without chronic metritis, and besides, we see these ulcerations appear and disappear without the disease being sensibly modified, which shows the slight importance of the ulcerations in respect to the parenchymatous inflammation.—*The Doctor*.

Ergot of Rye.

In a discussion at the Academy of Medicine, Dec. 17, 1872, Dr. Devilliers maintained that *sages femmes* such as are educated at the best French schools, do not understand how to use ergot

of rye, and that they should be forced by law to limit the use of it to *post partum* hæmorrhage alone, and only be allowed to obtain it on presenting an order for it from a Medical man. Dr. Depaul, on the other hand, demands a more extended education for midwives since custom concedes to them the employment of ergot of rye, and many of them even make use of the forceps. Leave them the ergot, says Depaul, but teach them how to use it. Dr. Guérin observed that if ergot of rye has its inconveniences, it has also its incontestable utility, for it brings on the flow of the lochia and often prevents the accidents of puerperal fever.

ERGOT IN HEADACHE.

D. R. Silver, of Sidney, Ohio, states in the *Medical and Surgical Reporter*, that ergot is better for headache, than any other single article of the materia medica. He recommends it to patients who are subject to the malady thus:—R. Squibb's fl. ext. ergotæ, grs x—xx for one dose. To be repeated every half hour until relief is obtained, or four or five doses are taken. The primary effect of opium is to produce hyperæmia of the brain. To neutralize this action Dr. Silver employs with it fluid extract of ergot, and says the combination has a happy effect in cases in which opium alone would be contra-indicated by the fluxion of the brain. He does not regard ergot as a specific for headache, but thinks thousands of people are made miserable once a fortnight or once a month, who, by the use of it, may be made, for the time, comfortable. His experience with ergot in the headache of fevers is limited; but he would expect no good result from it, since the pain is then, probably, produced by the abnormal temperature and quality of the blood, instead of being occasioned by fullness of the cranial vessels, as once supposed.—*The Doctor*.

The Absorption of Tobacco Smoke. By CHARLES R. DRYSDALE, M. D., Senior Physician to the Metropolitan Free Hospital of London.

EVERY one knows that the chief injurious effects of tobacco are due to the nicotine contained in it. Hence, the importance of considering whether tobacco smoke contains nicotine. Now, Melsens collected from 4,500 grammes of tobacco smoke passed through water, 30 grammes of nicotine. Dr. Le Bon in the *Giornale Veneto dei Scienze Mediche* S., iii, 1872, remarks that the fact of nicotine being absorbed by smokers is proved not only by the injurious effects on the organism, but also by other circumstances. The alkaloid is soluble in water and in the fluids of the mucous membranes; smoke condensed and mingled with water becomes easily absorbed. As to the quantity of nicotine absorbed

in smoking, science has as yet nothing exact to mention, since this varies according to the kind of tobacco used and the circumstances under which it is used.

Besides nicotine, tobacco also contains ammonia in notable quantity, which is taken up by the mouth and lungs. When cigars are smoked the constituent parts of the tobacco are turned into the form of vapour. A part of the smoke spreads itself over the cool tobacco leaf near the mouth, another part comes in contact with the cool mucous membrane of the mouth; where it is condensed and absorbed. The rest is spread about in the air. The further the burning process of the cigar proceeds, the moister does the tobacco leaf become, the more smoke arrives at the mouth, and becomes absorbed, so that the end tastes bitter, and beginners feel sick from this fact when smoking a cigar to the end.

Hence, it seems that in the smoking of cigars, especially if smoked to the end, a very notable quantity of nicotine and other constituents of tobacco are absorbed, even when smoking takes place out of doors, and the smoker does not inhale the smoke into the lungs. If the smoking takes place in closed rooms, then not only are nicotine and the other parts of the tobacco taken up in the mouth, but also with each breath a portion of the tobacco smoke contained in the air of the room. The quantity of injurious substance of course becomes the greater just in proportion as the room is smaller, and there are more smokers. A railway smoking carriage is, of course, the *ne plus ultra* of unwholesomeness in this respect.

Persons who indulge in the habit of first inhaling the smoke, and then expelling it by the nostrils and mouth, take up a much larger quantity of nicotine from the great absorption power of the lungs and other mucous membranes.

When pipes are smoked, even with short stems, there is much less injurious substance absorbed, because the smoke is absorbed in the cool tube, less of it arrives in the mouth, and, as is well known, is found among the ashes of the pipe. The longer the stem, the less of the constituents arrive at the mouth or lungs; hence, the advantage of long pipes, and especially of Turkish hookahs, when the smoke passes through water.

With regard to persons who, not themselves smoking, remain in chambers where smoking takes place, they cannot in any way escape the injurious effects of tobacco smoke. If they do not inhale so much injurious matter as the smoker himself, still they take in on each breath a quantity of the constituents of tobacco smoke mingled with air; and to such a degree that he or she who lives in such a room takes in more nicotine than a smoker does who smokes only in the open air.

Hence, it appears, that women who serve in public houses and cigar divans, are materially injured by a vice which their own

sex is innocent of; and this fact may, perhaps, restrain some good-hearted male, who is quixotic enough not to care sufficiently for his own health.

It is now well known by the observations of Dr. Kostrál in the Austrian State tobacco manufactory, that persons employed in tobacco manufacture are subjected to many diseases, especially in the case of young women and boys.—*The Medical Press and Circular*.

Clarke and Amory on the Bromides of Potassium and of Ammonium.*

BROMISM not uncommonly occurs where these drugs are taken several times a day for some time. The phenomena occurs much more readily in some persons than in others. They do not happen when only one dose, even large, is taken daily, and are not likely to arise if this be divided, provided the doses are taken near together, whereby there occurs a period each day when the system is almost free from bromine. Bromism usually occurs when a hundred grains in divided doses are taken daily (Echeverría on Epilepsy.) The following are the phenomena enumerated by Dr. Clarke under bromism:—‘Acne, salivation, and salt taste; irritation of the fauces, generally with oedema and redness (Voisin, *Bulletin Général de Thérapeutique*), and sometimes with paleness (Gubler, *Bulletin Général de Thérapeutique*, 1864); moderate anæsthesia of the pharynx; laryngo-bronchial weakness, sometimes with cough, sometimes with a changed or whispering voice; fetid or bromised breath; occasional stammering; increase of renal secretion; diminution of mucous secretion generally; slight constipation, and, in a few rare instances, diarrhoea; sense of mental and physical languor or weakness; sometimes temporary impairment of memory; general aspect of hebetude and indifference; more or less somnolence; repression and occasional temporary abolition of sexual desire and power; impaired locomotion, which, when the dose is excessive, resembles the gait of locomotor ataxy; diminished nervous sensibility; in general, especially diminution of reflex sensibility. Sight and hearing are unaffected. The conjunctiva, like the fauces, are often congested, but the optic nerve is unaltered’ (J. V. Laborde, *Archives de Physiologie*, May 1868). ‘The appetite and digestion are unimpaired; tactile sensibility, the sense of temperature and of tickling, appear to be imperfectly conducted, but really are unimpaired; intellect and emotion may seem sluggish; but,

* An Abstract of the Physiological and Therapeutical Action of the Bromide of Potassium and the Bromide of Ammonium. By Dr. Edward H. Clarke and Dr. Robert Amory. Boston: James Campbell. 1872.

when roused they act normally. It does not alter the chemical constitution of the secretions.' After an excessive dose, 'oedema supervenes on congestion of the uvula and fauces; the whispering voice sinks into aphonia; sexual weakness degenerates into impotency; muscular weakness becomes complete paralysis; reflex, general, and special sensations disappear; hearing, sight, and taste are lost; the mind becomes imbecile, and there occur 'hallucinations of sight and sound, with or without mania; the pupils are dilated and uncontractile.

Dr. Clarke estimates that two-thirds of his patients who took the bromide several times a day suffered from acne, but he has never known it to result from one dose daily. The spots of bromic acne vary in size from a millet-seed to a large pea, and may be few or many; they affect mostly the scalp, face, and back. They generally disperse without suppuration. They do not scar. They are often much controlled, and quickly dispersed, if iodide of sulphur be smeared several times a day over the hardness as soon as it is felt.

Dr. Clarke agrees with Zapfèl (*Thèse pour le Doctorat*, Paris, 1869) that bromide of potassium affects the reflex irritability, but not the sensibility of the pharynx; thus irritation will not excite deglutition, but the pain of operations is not lessened. He also agrees with Voisin that thirty grains may not impair pharyngeal sensibility, it being sometimes necessary to repeat this dose two or three times, a few hours apart. In administering bromides, Echeverria advises strong coffee with the meals, to increase the therapeutic energy of the medicine and to diminish bromism. He also says that five or ten minims of Fowler's solution with each dose, if alkaline baths be also given, will prevent acne. Moderate doses given several times daily increase the hypnotic action of hydrate of chloral, hyoscyamus, cannabis Indica, lactucarium, ether, or chloroform.

Bromides must be taken several times a day for several days before the sexual functions and sexual appetite become affected. Their effects vary greatly; in some they cause only moderate diminution, in others temporary impairment of these functions. On discontinuing these remedies the sexual organs regain their lost powers. Dr. Clarke quotes Zapfèl, who says that 'bromide of potassium seems to effect particularly the phenomena of reflex sensibility, whose seat, according to some authors, is at the orifice of the ejaculatory canals. The passage of the bromised urine over this orifice produces a local anæsthesia, and so takes away the point of departure of the reflex action (the excitomotor point) of an erection.'

Dr. Clarke recommends bromide of potassium in bronchitis, if the cough be paroxysmal, and in excess of the physical signs (and expectoration?), when it affords more relief than opium: also in sore throat, without redness or swelling, but accompanied

with frequent and useless hawking and spitting, and in difficult deglutition of a spasmodic character, whether hysterical or not. He employs this salt in ten-grain doses during the day, and gives twenty or thirty grains more in a single dose at night, in seminal emissions, whether due to 'local irritation' or to 'sexual and erotic feelings.' It reduces sexual excitement in women, in those sad instances of hysteroidal excitement which verge on nymphomania. In all these affections small doses are unavailing. Not less than twenty grains thrice daily will exert a decided control over excessive sexual propensities. (*Stillé, Materia Medica and Therapeutics*.) 'Frequent micturition and incontinence of urine, connected with nervous disturbance of a local or general character, are ameliorated, and sometimes permanently relieved, by bromides. In like manner, vaginismus occasionally yields to these medicines.' Injection of solution of bromide of potassium, retained in the vagina for ten minutes twice a day, may be advantageously employed in addition to the internal administration of the medicine.

Menopausal troubles, such as timidity, irritability of temper, broken sleep, apprehension of serious evil, flushings, numbness, and deranged sensations, are more controlled by bromide of potassium than by any other drug. It should be given only when the nervous disturbances are excessive, and should be continued for two or three weeks.

The bromides are useful in angina pectoris. Two grains should be given three times a day, and a thirty-grain dose at the onset of a paroxysm, being repeated in half an hour or an hour if necessary. Like angina pectoris, whooping cough and asthma are only occasionally benefited by these medicines, and the symptoms indicating their use are at present unknown.

In neuralgia, Dr. Clarke agrees with Anstie (*Neuralgia and the Diseases that resemble it*), that in most cases bromides are quite useless. 'The patient must not have entered on the period of tissue-degeneration.

... Those who will benefit by the bromide are subjects—especially women—in whom a certain restless hyperactivity of mind, and perhaps of body, seems to be the expression of nature's unconscious resentment of the neglect of sexual functions. The medicine must be given in large doses, and it may be increased until ninety grains are taken daily.

Headache accompanying grief or worry, and also sick headache, where the pains, &c., precede and predominate over the gastric symptoms, often yield to bromides. The medicine must be given as soon as the attack begins, in twenty-grain doses repeated hourly till the system is completely under its influence. It is also useful as a prophylactic, given daily in moderate doses.

Dr. Clarke's experience of bromides on epilepsy is too small to

allow him to speak authoritatively of their efficacy. On this subject he quotes Voisin, who says (*Bulletin Général de Thérapeutique*) May 1871): 'I have employed for many years a method which has given me the best results, and which consists in determining the condition of reflex nausea, by introducing a spoon as far as the epiglottis. I have remarked that a therapeutic dose of the bromide of potassium is not attained till reflex nausea is suppressed; it is not till then that the bulb is certainly acted on, and its excito-motory force diminished. . . . The study of other reflex phenomena, such as lachrymation, cough, and sneezing, enables us to follow the action of the medicine upon the bulb and the spinal cord. The dose should not be increased beyond the suppression of reflex nausea, but it should be given continuously for years together. If the malady be ameliorated or in process of cure, at the end of two years of amelioration the remedy, instead of being administered every day, may be given every second, third, or fourth day, provided reflex nausea be always and certainly absent.' Voisin considers the early appearance of toxic effects a good, their late appearance a bad augury. He says that bromides are useful in all forms of convulsions, as the phenomena 'are the product of an exaltation of the excito-motory force of the bulb,' which bromide of potassium can always moderate if it cannot suppress it. This remedy suppresses the aura, even when it fails to dispel completely the attacks. It has less influence over vertiginous than over convulsive attacks. 'It generally succeeds less well with children than with adults.'

Dr. Clarke finds that bromide of potassium is very useful in epileptiform hysteria. It must be continued from six to twelve months.

Dr. Clarke refers to M. Sanson's observations (*Thèse*, Paris, 1868) concerning the antagonism between the actions of bromide of potassium and strychnia on the medulla and spinal cord; bromides contracting the blood-vessels, strychnia dilating them and heightening reflex excitability. He injected strychnia into one leg of a frog, and bromide of potassium into another. There occurred convulsions and tetanic stiffening of the strychnised foot, but none in the other (surely these results could not be due to any effect on the cord). 'Next he injected a mixture of strychnia and bromide; the convulsions were feeble and their duration abridged, and the animals lived longer than after an equal dose of either agent singly.' Brown-Séquard notices the same.

The physiological and therapeutic action of bromide of ammonium Dr. Clarke considers identical with those of bromide of potassium. The ammonium salt, however, possesses a more disagreeable taste, and is more irritating. Dr. Clarke agrees with Brown-Séquard that it is useful to combine these two salts,

thereby heightening their sedative action; ten grains of bromide of potassium with three or five of bromide of ammonium yielding a greater sedative effect than twelve or fifteen grains of either administered alone. This combination they consider less liable to produce bromism. Dr. Echeverria disputes these assertions.

Bromide of lithium acts like the potassium salt. According to Dr. Weir Mitchell, the lithium salt is a more powerful and rapid hypnotic and succeeds, in some cases of epilepsy, &c., which have proved rebellious to the potassium salt.—*The Medical Record*.

RURAL CLINIQUE.

Obstruction by an Accumulation of Cherry-Kernels.

Obstinary and ignorance in a case of Retention of Urine.

Dr. Dagand d'Alby, member of the General Council of Upper Savoy, has addressed to me two observations derived from his practice, which are not as exclusively applicable to the inhabitants of country localities as he appears to believe. Many years ago, I saw the venerable Professor Lallemand, then Chief Surgeon of the Hospital of Salpêtrière, make an old woman of that Asylum assume a position, most convenient to the operator but least decent to the operator—on her knees with her head lowered and the buttocks raised in full view of the spectators occupying the amphitheatre. Lallemand, who ordinarily lectured in Latin, was able in those days to brave modesty with impunity, and, armed with a long curette, proceeded to the extraction of about a hundred cherry kernels, which had formed a veritable impermeably macadamized mass, cemented together by fecal matters.

In one of my visits to London, I was present at a judicial enquiry in which the Doctor of a Municipal Infirmary stood accused of having allowed to die of constipation an old woman, whose large intestine was found after death distended and partially ruptured by fecal matters having the hardness and color of ebony. The coroner had declared death to have resulted from the carelessness of the Medical attendant; the accused, however, was acquitted.

I was called, says M. Dagand, to attend on a poor old man of Saint Oflenge, named Charles Lamarche, for a malady which must be unknown in towns, but which is sometimes met with in the country,—it is obstruction of the rectum with cherry stones. Our peasants stuff themselves with cherries, swallowing both pulp and kernels; these last accumulate in the rectum, become agglutinated together, and, forming a cemented mass sometimes equal in volume to an infant's head, completely obstruct the intestine, and occasion most atrocious pain and all the symptoms

of strangulated Hernia. My father informed me that in the summer of 1817, a season of famine, many weeks did not pass without his being called to cases of this kind; in my practice, however, I have met with only three—the following is that of Saint Offenge.

Charles Lamarche, aged 65 years, had prepared for himself, on the 28th of July 1872, a soup, made with cherries. The mass of that soup, which contained but little fluid, was uniquely made with small cherries including their kernels, and a tablespoonful of flour. The cherry stones constituted 80 per cent of the soup. He consumed more than a litre of it at evening before going to bed, and was not indisposed during the night, but, on the morning, he was seized with frequent calls to stool, with tenesmus and expulsion of flatulence with liquid and glairy matters; then colic supervened, nausea, sensation of a hard ball in the stomach, and intolerable pain at the anus; on the 30th and 31st the symptoms became aggravated, and the patient not able to pass any solid motion; enemata would not flow into the bowel, but the patient had succeeded in extracting a dozen kernels with his fingers, introduced *per anum*. On the 1st of August, when I saw him, he rolled on his bed in frightful agony. I placed him in a suitable position, and, with a finger introduced into the bowel, endeavoured to break up the mass of stones, large as a fist, which filled up and greatly distended the rectum. With difficulty I extracted some kernels singly at first, then by twos, and subsequently in greater numbers. When I had made a breach in the base of the tumour, its disintegration became more easy and when I had removed a certain quantity, by means of a large tablespoon I extracted the rest piecemeal. This agreeable work occupied me for half an hour, and when all that could be reached with my finger and spoon was removed, I administered an injection which now passed into the bowel, and, stimulating the contraction of the rectum, completed the relief of the patient whom I left comforted and cured. There were two-thirds of a litre of cherry stones in this patient's straight gut.

The following is a pathological case, which must be very rare in towns where the sick receive generally prompt succour. It is an instance of incomplete retention of urine, simulating incontinence, which continued from the 2nd to the 28th November 1871. It is the second case of this kind that I have met with in my practice.

The woman Guerin, of Gonffy, aged 44 years, who had had eight children, and not having menstruated, for three months, believing herself pregnant, was seized without any known cause with difficulty of micturition on the 2nd November 1871. From that date, the belly had increased in volume, which she attributed to her pregnancy. The urine was not expelled at will but issued in jerks. Then suffering horrible pains in the loins,

flanks, and above all in the sub-pubic region, patient was obliged to keep her bed. From this time urine escaped continually in drops, and during exacerbations of pain in a sudden jet. When I saw her on the 23rd November, she was lying naked on straw, without coverings, always wet with urine which flowed continually, and experiencing intermittent pains like those of labour. A round dull tumour occupied the lower part of the belly as high as the umbilicus; the mucous membrane of the vagina, excoriated by the contact of urine, formed a hernia at the vulva, which it filled up entirely. After having examined her carefully externally, *per vaginam*, and *per anum* too, I diagnosed retention of urine and wished to perform Catheterism. But I had the misfortune of not being believed by either the patient or her attendants, who considered the case one of pregnancy and abortion, and notwithstanding my efforts to persuade them to the contrary, persistently refused the operation. I then withdrew. But three days after, the patient unable to endure her sufferings any longer, had me recalled, promising to submit to whatever I wished. On my arrival, she was in a very pitiable condition. Urinary absorption had occurred, and she had just received the last sacraments. After having reduced the vaginal hernia which concealed the entrance of the meatus urinaris, I introduced my catheter into the bladder, and drew off three litres of urine. Patient was immediately relieved, the hypogastric tumour disappeared, and retention did not recur. She, however, experienced some difficulty in micturition until the 6th of January, but had no more incontinence; from the end of December she left her bed, and when I saw her again on the 8th of January she was quite well, and her pregnancy continued its usual term without accident.—*Journal des Connaiss. Médicales*.

Mr. Henry Lee in urethral discharges.*

"We have now considered the principal forms of urethral discharges as they occur in men, and the catalogue is by no means exhausted. Most of these discharges may be communicated in kind to women. A pus-globule, from whatever source derived, will grow, subdivide, and multiply for a time when translated to another part, and may there produce an action of the same nature as that which originally produced it. Some of these actions have a specific character, but many of them have no specific origin.

"In women the mucous lining of the urethra and vagina form one continuous membrane, and the diseases of one part by continuity of action are readily transmitted to any other part.

* Being the conclusion of his third Lettsomian lecture.

This membrane, taken as a whole, is much more extensive, much more vascular, and, therefore, subject to a much greater variety of constitutional influences, than the mucous membrane of the urethra in men.

"Any general disturbance of the health will produce a vaginal discharge in women; and these are so numerous that I will not attempt to enumerate them. If, then, the exact nature of a discharge in a man may prove of difficult diagnosis, the difficulty in women is increased tenfold. Hunter, we have seen, did not distinguish between an ordinary gonorrhoea and a syphilitic discharge from the urethra in men; and Babington says, 'the distinction between venereal gonorrhoeas and simple purulent discharges which are not derived from infection is to be found less in the severity of the symptoms than in their obstinacy.' The urethra is often attacked with inflammation as violent as that of a gonorrhoea in cases where there has been no possibility of infection. This discharge may be as copious, and exactly similar both in colour and appearance. If this be the case in men, what shall we say with regard to the diagnosis of these causes in women, when we consider the great variety of causes which may give rise to discharges in them, the difficulty there may be in making an examination, and the possible motives for deception? As patients present themselves at the hospital, the diagnosis is sufficiently easy. In fact, they have already diagnosed their own cases, and come ready to mention their symptoms. But the case would be very different if the surgeon had to decide upon his own responsibility, especially if the patient were an unwilling witness. Not long ago, I saw a patient who had purulent discharge sufficiently abundant, the whole mucous membrane was red and inflamed, and I thought it must be a case of gonorrhoea, although I was prudent enough not to say so. A week after, I saw this patient again. The inflammation had all disappeared. The mucous membrane was of its usual colour, and the discharge not more than natural. I reversed my diagnosis and congratulated myself that I had not unjustly accused the patient. On the other hand, it has not unfrequently happened that patients have assured me that they had had the persons from whom they had been infected examined by their own Medical men, and that they were reported free from all disease; and in some cases the Medical men themselves have called upon me and given the same account. Hunter's opinion upon this subject is thoroughly practical and trustworthy. 'The appearance of the parts,' he says, 'often gives us little information, for I have frequently examined the parts of those who confessed all the symptoms, such as increase of discharge, pain in making water, soreness in walking, or when they were touched; yet I could see no difference between these and sound parts. I know of no other way of judging, in cases where there are no symptoms sensible

to the person herself, or where the patient has a mind to deny having any uncommon symptoms, but from the circumstances preceding the discharge; a woman may have this species of venereal disease without knowing it herself, or without the surgeon being able to discover it even on inspection.'

"Surely there is matter here for the serious consideration of any Medical man who undertakes to advise Her Majesty's ministers on the working of the Contagious Diseases Acts; and especially with regard to the extension of those Acts to the civil population.

"It is not my intention or wish in any way to offer an opinion here on the propriety or the operation of the Acts referred to. But as the responsibility of the principles upon which those Acts are framed will be thrown ultimately upon the Medical profession, and the practical application of those Acts will involve the personal responsibility of Medical men, I am somewhat jealous for the future honour of our profession, and anxious that any opinions and advice given by us to the Legislature should stand the test of time, and, in order that they may do so, that they should be established upon a really scientific basis."

At the close of the lecture the President (Mr. Bryant), in thanking Mr. Lee, said, that he had put the treatment of those diseases upon a scientific basis, which were before often treated empirically. The address was received with loud applause.—*The Medical Press*

DR. NAGEL on the Treatment of Amaurosis by Strychnine.

PROFESSOR Nagel, of Tübingen, has published the result of twenty cases, in which the injection of strychnine was used in amaurosis. The dose of the agent must not exceed one and a-half to two milligrams for each injection, and the nitrate should be used. Never more than two injections per diem to be used. The effects of the remedy in all cases cited by Nagel, appear very quickly; in some patients, an amelioration could be noticed in a few minutes after the injection, which he advises always to be made in the temple or forehead, since those made on the arm or other locality far from the eye, remain without effect.

The forms in which the injection of strychnine achieved the most brilliant success, were slight cases of ambliopia with symptoms of retinal paresis, also if accompanied by restricted field of vision, amaurosis coming on suddenly unconnected with cerebral lesions, or grave alterations of the fundus oculi perceptible to the ophthalmoscope, traumatic amaurosis, or that arising from disease of one eye, and finally, the atrophic degeneration of the

papilla, whether at its commencement, or further advanced. In the last class of cases, the medication must be, and as quickly as possible, and by thus acting, Nagel has been able to obtain not only a suspension of atrophic degeneration, but an amelioration of visual power so great, as to render reading possible, notwithstanding the white colour of the papilla. Amaurosis of cerebral or spinal causation, are rebellious to strychnine injections and scleroses of the optic nerves, as well as optic neuritis; and, lastly, irritated conditions of the cerebellum and medulla oblongata, are contra-indications to this kind of treatment. Dr. Nagel's views have been ably epitomized in the *Giornale Veneto de Sc. Med.* for December last.—*The Doctor.*

Cameron and Tichborne on Volatile Disinfectants.

In a lecture delivered last spring by Dr. Cameron to the Medical Society of College of Physicians, in Dublin (*Pharmaceutical Journal*, Dec. 28, 1872, and Jan. 11, 1873), some experiments on the action of volatile disinfectants are described.

Animal liquids containing microzymes were freely exposed on the window panes and other smooth surfaces, in a room of the capacity of 1,600 cubic feet. The chlorine yielded by the complete decomposition of seven pounds of chloride of lime was let into the room, and allowed to act on the liquids for the space of forty-eight hours. At the end of this time, large numbers of living microzymes were still to be found in the solutions. Vaccino lymph, upon exposure to an atmosphere containing chlorine, appeared to be deprived of its virtue by much chlorine, but to retain its activity in atmospheres far more strongly chlorinous than is prescribed for the fumigation of infected dwellings. Dr. Cameron thereupon instances the absurdity of the directions for disinfection, issued to the officers of the army. The following is the quotation: 'To fumigate a room 60 ft. long, 20 ft. wide, and 12 ft. high. Take common salt, 4 oz., oxide of manganese, 1 oz., sulphuric acid, 1 oz., water, 2 oz. The water and acid to be mixed together, and then poured over the ingredients, in a delf basin, which should be placed in a pipkin of hot sand.—With nitrous acid gas: Take copper shavings, $\frac{1}{2}$ oz., nitric acid, $1\frac{1}{2}$ oz., water, $1\frac{1}{2}$ oz. Pour the acid and water upon the copper, in a small jar.—With sulphurous acid gas: Burn two ounces of sulphur in a pipkin.'

Dr. Cameron then goes on to say that the complete disinfection of a room tainted with the poison of contagious disease can only be accomplished by the most thorough cleansing. The real use of atmospheric disinfectants the doctor explains thus:—'As people cannot comfortably breathe in a room which has just been disinfected by sulphurous acid or chlorine, they are obliged to

open doors and windows in order to admit the fresh air. In this way the use of disinfectants is to be commended, because it obliges people to ventilate their apartments. If solutions of disinfectants be applied to the walls and woodwork, they should be strong ones.'

[In short, as was insisted upon by the reporter in the pages of the *Lancet*, we cannot disinfect the atmosphere without, at the same time, rendering it unfit to breathe, and therefore the employment of atmospheric disinfectants is useless; for, if we have to get rid of the air of a room, why should we waste any chemicals upon it before sending it out of the window?—*Rep.*]

In a lecture, in the same place, Mr. Charles R. C. Tichborne attempted a reply to Dr. Cameron. There is not a cubic inch of air in Dublin which does not contain small-pox-virus. 'But like all poisons there is, I suppose, a point of attenuation where it is inert, and to keep it below that point is the great use of volatile disinfectants.' Accordingly, Mr. Tichborne would seem to regard the general atmosphere of Dublin as within the reach of disinfectants. The lecture contained likewise an illustration of the efficacy of chloride of lime and carbolic acid after other means had failed.

[In the instances quoted, however, the most effective means employed were the washing the walls with a solution of carbolic acid and chloride of lime, and the opening of the windows. Neither the lecture nor the example given prove anything in favour of volatile disinfection—a practice which rests, in fact, upon a misapprehension.—*Rep.*—*The Medical Record.*]

Observations on the Structure of the Human Placenta.

By PROFESSOR TURNER.

THE Human Placenta from its great importance as the organ of union between the mother and the *fetus in utero* has long been a favourite object of investigation, and many distinguished anatomists have from time to time directed their attention to the elucidation of its structure. But, notwithstanding all the time and labour which have been devoted to the subject, there still remained various points respecting which differences of opinion prevailed, and to determine the true meaning of which further observations were required. With the view of reaching a definite conclusion on these disputed questions, I have for some time past availed myself of many opportunities of investigating this organ, and have examined it not only after expulsion from the uterus in the ordinary course of labour, but whilst still connected to the wall of the gravid uterus.

I shall arrange my observations in the following sections:

1st. The relations of the maternal blood-vessels to the placenta.

- 2nd. The arrangement and structure of the decidua serotina.
 3rd. The minute structure of the villi of the chorion.
 1st. The relations of the maternal blood-vessels to the placenta*.

No point in placental structure has been more the subject of discussion amongst anatomists than the arrangement of the maternal blood-vessels and their relations to the foetal capillaries within the villi of the chorion. All indeed now agree that there is no direct flow of blood from the maternal into the foetal vessels or *vice versa*, and that mother and child each possess an independent circulation. It is also admitted that in the gravid uterus, when the placenta is fully formed, the curling arteries do not communicate with the utero-placental veins through an intermediate plexus of capillaries.

By several obstetricians, viz. Robert Lee†, Velpeau‡, Seiler§, Ramsbotham¶, and Adams||, it has been asserted that the maternal blood does not pass into the interior of the placenta, and this view has been revived by Braxton Hicks in a paper published in the May number of this Journal.

About the middle of the last century John Hunter,** from the dissection of a gravid uterus, where the placenta was filled with wax injected through the curling arteries and uterine veins by Dr. Mackenzie, and subsequently from injections made in conjunction with his brother William, concluded that he had established the circulation of the maternal blood through the placenta. This important conclusion has been supported and corroborated by the observations of many eminent investigators, more especially E. H. Weber††, Owen‡‡, J. Reid§§, J. Goodsir¶¶, Van der Kolk|||, Virchow***, Kölliker†††, Arthur Farre†††, and Ercolani§§§. But though there is a common understanding amongst

* Many of the facts contained in this section were communicated to the Royal Society of Edinburgh, May 20th, 1872, and an Abstract of these is inserted in the Proceedings of that Society.

† Philosophical Transactions, 1832, p. 67.

‡ Embryologie Humaine, Paris, 1833.

§ Die Gebärmutter und das Ei des Menschen, 1832.

¶ London Medical Gazette, 1834 and Obstetric Medicine and Surgery.

|| London Medical Gazette, 1845, i. p. 758.

** Animal Economy and Collected Works, iv. p. 60.

†† Quoted in Müller's Physiology, Baly's Translation.

‡‡ Notes to Hunter's Works, Palmer's Ed., iv. p. 69.

§§ Ed. Med. and Surg. Journal, Jan. 1841, and Phys. and Path. researches, p. 316.

¶¶ Anal. and Path. Obs. 1845, and Anatomical Memoirs, 1868, ii. p. 445.

||| Quoted by Priestley in Lectures on the Gravid Uterus.

*** Würzburg Sitzungsberichte, 1853, and Gesammelte Abhand. 1856.

††† Entwicklungs-geschichte, 1861.

††† Uterus in Todd's Cyclopaedia.

§§§ Mémoire sur les glandes utriculaires de l'utérus, Bologna, 1868, and Algiers, 1869.

these observers that the maternal blood enters the placenta by the curling arteries and flows through intercommunicating spaces—which have been variously termed the cells of the placenta, the cavernous spaces, the placental sinuses or lacunae, the inter-villal spaces, or the placental bag or sac—prior to leaving the organ by the utero-placental veins, yet opinions are divided whether the blood is simply diffused through or extravasated into these spaces, without being confined in definite channels, or whether the spaces are limited by a membrane continuous with and belonging to the maternal vascular system, or derived from the decidua.

By the Hunters, Owen, Kölliker and Arthur Farre the uterine arteries and veins are supposed to open into the intraplacental spaces, through which the blood is transmitted so as to bathe directly the foetal villi, without the intermediation of any maternal structure, and by Virchow it is considered that in at least the later stages of placental formation the villi grow through not merely the decidua, but the coats of the mother's blood-vessels, so as to hang free and naked in her blood. E. H. Weber, again, thought that the uterine vessels formed a network of wide canals within the placenta, the extremely thin parietes of which invested the foetal villi. John Reid held that the intra-placental part of the maternal vascular system was dilated into a large sac, the lining membrane of which ensheathed the foetal villi. Like Weber he believed that the maternal blood was retained within her own system of vessels. John Goodsir stated that not only did the maternal vessels form sinuses within the placenta—the vascular coat of which ensheathed the foetal villi—but a layer of nucleated decidual cells was also prolonged over the villi, the latter of which were separated from the maternal blood by both these structures. Schroeder van der Kolk, again, described the interior of the placenta as subdivided by processes of the decidua into compartments lined by an epithelium derived from the decidua, which was also prolonged over the villi contained in these compartments so as to separate them from the maternal blood as it flowed through: and Ercolani also maintained that the uterine vessels did not subdivide within the placenta, but that the blood was enclosed in lacunae or sinuses circumscribed by the decidua, the cells of which were prolonged on to and ensheathed the villi of the chorion.

My observations have been made on uninjected mature placenta, and on injected specimens. The latter were as follows: a. normally separated placenta into the substance of which a pipe was inserted, and a transparent gelatine injection coloured with carmine was gently passed: b. an attached placenta at about the 6th month of gestation, the pipe being inserted into a uterine vein in the broad ligament and a transparent coloured injection passed gently into the placenta: c. an attached speci-

men at the full time, the pipe being introduced into a uterine artery, and a transparent injection gently passed into the organ: *d.* an attached specimen at about the full time; a section was made through the placenta and uterine wall and a pipe was inserted into an opening on the cut face of the placenta, which was believed to be a divided sinus situated in a decidual dissepiment between two adjacent cotyledons, and the injection gently passed along it: in this preparation the foetal vessels were also injected from the umbilical artery. In all the specimens the injection flowed with great ease into the placenta, which swelled up and became tense, as if it passed into a system of pre-existing freely inter-communicating spaces readily and naturally admitting of its diffusion, and not as if it were extravasated into spaces artificially produced by the gentle pressure to which the injection was subjected*. In specimen *b* the coloured gelatine was traced along the sinuses situated in the muscular wall of the uterus into the so-called circular venous sinus and into the utero-placental sinuses in the decidua serotina. When the free edge of the placenta was raised, and the organ carefully separated from the uterus, the injected utero-placental sinuses, with distinct though delicate walls, were torn across, and the injection which they contained was seen to be continuous with that within the intra-placental spaces: at the margin of the placenta also a direct continuity was traced between the injection in the so-called circular sinus, and that within the placenta. The arrangement of these sinuses closely corresponded to the description written many years ago by Prof. Owen, of a specimen he examined. Veins of considerable size in the decidua vera, and extending for about an inch into the decidua reflexa, were also injected. In *c.* not only was the placenta injected from the uterine artery, but the coloured gelatine had penetrated into the venous sinuses, in the decidua serotina, and in the muscular wall of the uterus: large venous sinuses, lined by a distinct smooth membrane, were traced for $\frac{1}{16}$ ths of an inch, into the placental substance along the inter-cotyledonary decidual dissepiments. In *d.* the injection was limited to those portions of the placenta adjacent to the spot where the pipe was inserted, but the neighbouring, utero-placental sinuses and so-called circular sinus were also distended.

Portions of the different placenta were hardened in spirit and thin slices were then made with Stirling's section cutter,† and subjected to microscopic investigation. The transparency of the injection enabled me to study its relations to the villi and decidua with an accuracy such as it is not possible to attain with wax or other opaque injections. The drawing therefore with which this paper is illustrated, is a picture of the villi and intra-

* In preparing these injections I have been aided by the skill of my Museum-Assistant, Mr. A. B. Stirling.

† Described in this Journal, May, 1870.

placental maternal blood spaces as seen under the microscope, and not a mere diagrammatic conception of what the mode of arrangement might be considered to be, such as has generally been the case in the representations of the human placenta given by previous anatomists.

In these sections the villi may be seen to lie in the interval between the chorion and the decidua serotina. The trunks of many villi may be observed to arise from the chorion, though in other instances they are cut across transversely or obliquely. Deeper in the substance of the placenta also villi of large size are met with, divided either longitudinally, obliquely or transversely, some of which penetrate close to the decidual surface, and not unfrequently are attached to it. In all the larger villi, the umbilical vessels may be readily seen, even with low magnifying powers. Numerous secondary villi arise from these primary stems, which branch in the tree-like manner so often described. But by far the greater number of the smaller villi with their bud-like terminal offshoots have been cut off from their parent stems in the act of making the section. The villi are not so crowded together as to touch each other, but are separated by intermediate spaces filled with coloured gelatine. These spaces are circumscribed distally by the surface of the chorion from which the villi spring, proximally by the decidua serotina on the uterine aspect of the placenta, and laterally by the inter-cotyledonary or primary decidual dissepiments. The spaces within a given cotyledon freely communicate with each other, but the inter-cotyledonary dissepiments interfere with a ready communication between the injected spaces of adjacent cotyledons.

The injection was diffused with great regularity through each cotyledon, so as to surround not only the stems of the villi, but the multitudes of bud-like offshoots which branched off from them. Each villus was as it were immersed in a bath of coloured gelatine, which occupied, I believe, the place of the mother's blood, and gave one a vivid conception of the mode in which that fluid during life laves the villi of the chorion in which the foetal capillaries are contained. The regularity of distribution of the injection is an important argument against its having been produced by extravasation, for if its presence in the placenta had been due to that cause, the gelatine would undoubtedly have been collected in masses in some localities and absent from others, and the villi would have been packed together and compressed. From the ease with which these intra-placental spaces are injected either through the artery or vein, or by passing the gelatine directly into the substance of the placenta, and from the uniformity and regularity of the pattern produced, few anatomists would be inclined to doubt that these spaces pre-exist in the placenta, that they freely communicate not only with each other, but with

the curling arteries and utero-placental sinuses, and that during life they are distended with the mother's blood.

But this conclusion is supported by another important piece of evidence. For when thin sections through the injected placenta—both in those still adherent to the uterus, as in those normally separated—were examined with the higher powers of the microscope, crowds of red blood-corpuscles were seen to occupy the intervillal spaces imbedded in the coloured gelatine. Scattered amidst these red corpuscles a proportion of white corpuscles was also readily recognized. Ocular demonstration was, therefore, afforded of the presence of blood in these spaces, and as there was no appearance of rupture of the foetal vessels, although large numbers, not only of sections, but of teased-out preparations, were examined, I have no reason to think that the blood could have been extravasated from them into the substance of the placenta. These corpuscles could, I believe, have been derived only from the maternal blood vessels, with which the intervillal spaces were anatomically continuous.

I am unable, therefore, to agree with the opinion expressed by Dr. Braxton Hicks, in the paper printed in the last number of this *Journal*, that the maternal blood does not exist in the intervillal spaces, and to the inference which he draws that there is no intra-placental maternal sinus system. For not only do I join issue with him on the question of fact, but I doubt if the specimens which he adduces in support of his views are of a kind to permit satisfactory conclusions on this matter to be drawn from them. I have experienced no difficulty in seeing blood-corpuscles in the intervillal spaces, both in attached and separated placenta, in such numbers, and so generally diffused, that I cannot regard their presence, as he would infer, to be due to rupture of the vessels within the foetal villi, or to imbibition of the blood at the decidual surface of the placenta after detachment of the placenta from the uterus.

Of the eight specimens which Dr. Hicks adduces in support of his conclusions, the 5th, 6th, 7th, and 8th are admittedly diseased; the 5th being an aborted ovum "about 1 inch in diameter," the others being placenta "in the state called fatty." The aborted ovum was in so early a stage that it is very questionable if the maternal blood-vessels had begun to exhibit the changes induced by gestation. He makes no mention even of blood-vessels within the foetal villi, and until these are formed we have no reason to believe that the system of maternal sinuses is developed. The fatty placenta were so diseased that the child in each case had died before delivery, and not only did he find no blood in the intervillal spaces, but, as he very candidly observes, the villi themselves were either altogether or almost entirely bloodless. The diseased state of the placenta, its bloodless condition, and the death of the foetus, all prove that the placenta was no longer

fulfilling its function as a great organ of circulation and nutrition, and it is not to be wondered at, therefore, that no blood was found in the intervillal spaces. But I would submit this is no evidence that they were not filled with blood when the organ was healthy and the child was alive. For it would be just as logical, or rather as illogical, to say that no blood circulated through the foetal villi, because they were bloodless in these specimens; surely Dr. Hicks is not prepared to support that inference! and yet the one conclusion would be quite as legitimate as the other! Further, in the 2nd specimen, about the 3rd month, the foetal villi were also bloodless, a circumstance which indicates that here also a disturbance in the placental circulation had taken place. In his 3rd and 4th cases, about the 4th month of gestation, he admits that some blood was found in the intervillal spaces, and though his theory constrains him to suppose that its presence there was accidental, yet he confesses that he could not satisfactorily ascertain if it occurred from rupture of the villi, or came from the maternal side. His 1st case, an attached placenta in the 6th month, is the only example adduced of a well-grown healthy specimen in which he found no blood in the intervillal space; but as he gives no account how he determined its absence in this placenta, this solitary example cannot outweigh the mass of evidence on the other side of the question which has been advanced by the eminent anatomists referred to in the early part of this paper, and by the now observations which I have myself made.

Further, he alludes generally to differences in the amount of blood met with in the examination of placenta when naturally expelled during labour. In regard to this I would merely say that when we reflect on the great pressure the detached placenta is subjected to by the uterine contractions which cause its expulsion; that this pressure is exerted on an organ, the uterine face of which possesses the numerous orifices of the torn-across utero-placental vessels, through which the blood can be squeezed, and that, moreover, the pressure can be assisted by the contraction of the muscular layer* of the caducous part of the decidua serotina, the wonder is not that no maternal blood, or only a small quantity, should be found in the intervillal spaces of a separated placenta, but that any of that fluid should be found there at all.

Lastly, I may state that no satisfactory explanation can be given of the passage of blood from the curling arteries of the uterus through the utero-placental sinuses into the sinuses within the muscular wall, unless an intra-placental circulation be accepted.

* In the succeeding section I shall detail the reasons in support of the statement that a layer possessing the anatomical characters of smooth muscular fibre exists in the decidua serotina.

ed: for the continuity of the one set of vessels with the other in the fully formed human placenta, either directly or through the intermediation of a capillary plexus, although the latter has been assumed, has not only not been proved, but is opposed to recorded observations.

I shall now proceed to consider the theory supported by Weber, Reid and Goodsir, that the maternal blood-vessels are prolonged into the placenta, and that their lining membrane is reflected on to the chorionic villi, so as not only to ensheath and separate them from the mother's blood, but to form a limiting membrane for the spaces or passages through which the blood circulates.

I have been unable to satisfy myself of the accuracy of the special modification of this general theory, which has been advocated by E. H. Weber. There is indeed no difficulty in seeing the curling arteries pierce the decidua, or in tracing sinuses continuous with the utero-placental sinuses into the primary dissepiments of decidua which lie between the cotyledons, and in so far the mother's blood undoubtedly lies in definite canals, limited by the maternal vascular membrane. But I have as yet seen no evidence that the uterine vessels form a definite network within the cotyledons.

The view supported by Dr. John Reid, that "the inner coat of the vascular system of the mother, or at least a membrane continuous with it," is prolonged over each individual tuft of villi, was obviously based, not on what he saw within the placenta itself, but on observations made as to the relations of certain villi situated at the uterine aspect of the placenta to the utero-placental veins, or the "sinuses placed next the inner surface of the uterus." For after pointing out how these villi protrude into the open mouths of certain of the sinuses only, and that "though they were so far loose and could be floated about, yet they were bound down firmly at various points by reflections of the inner coat of the venous system of the mother upon their outer surface;" he then goes on to say, "the outer surface of the placental vessels (villi?) has a smooth appearance, and they are, *we may suppose* (the italics are his own), everywhere enveloped in the inner coat of the vascular system of the mother, which, as we have seen above, is reflected upon them."

Dr. Reid's observations, though detailed with great precision, and confirmed in many particulars by Professors Goodsir, Sharpey, Allen Thomson, Alison and Simpson*, have been of late years so ignored by many writers, that I thought it advisable to re-investigate this part of the subject. In an attached placenta in the 9th month of gestation, where the fetal capillaries had been injected from the umbilical artery with gelatine and

* See Note at conclusion of Reid's Memoir, as reprinted in his *Physiological and Pathological Researches*.

carmine, I observed, on carefully drawing the placenta away from the inner face of the uterus, the dilated, cavernous, anastomosing arrangement of the utero-placental veins, with their valve-like semilunar edges, which has been so well described both by Owen and Goodsir. In various parts of the uterine surface of the placenta, but as it seemed to me especially near the outer edges of the cotyledons, where the primary decidual dissepiments dipped into the substance of the organ, tufts of villi could be distinctly seen projecting into the adjacent utero-placental sinuses. Their capillaries filled with a red injection, permitted me readily to distinguish them both from the coats of the maternal blood-vessels and from the decidua. These tufts occurred in the form of patches, oval, circular, or irregular in outline, and varied in diameter from about an inch to some fractional part thereof. When examined either with a pocket lens, or with higher powers of the microscope, the larger patches exhibited a somewhat cribriform aspect, owing to interlacing bars of membrane passing across them in an irregular manner. This membrane was continuous with and obviously formed a part of the coat of the utero-placental sinus, and was at times so thick that the injected villi were with difficulty seen through it, but at others so thin, smooth and delicate, as to represent only the inner coat of the sinus. It was in part merely in apposition with the villi, and could be readily raised from them, though in part it was attached by delicate processes, and seemed to bear out the expression used by Reid, of being reflected on to them. But in other portions of the patches no membrane could be seen, and the villi projected between the membranous bars free and naked into the canal of the sinus.

But the demonstration of this arrangement was by no means limited to the uterine surface of the placenta. For when the so-called circular sinus, lying along the outer edge of the marginal cotyledons, was carefully slit up, confirmatory views were obtained. This it is important to note, because whilst attached placentas are difficult to get, and but seldom examined, the placenta separated in the ordinary course of labour have the marginal utero-placental sinus not unfrequently so little injured that a ready demonstration of the relations of the villi to the maternal vessels can at any time almost be procured. I have sometimes seen the aperture in the wall of the marginal sinus so small that but a single tuft of branching villi projected through it, and the wall of the vein formed a distinct circular collar around the neck of the tuft. At other times I have seen a patch of villi upwards of an inch in length appear at the surface of the sinus lying next the cotyledon; the wall of the sinus presenting at the same spot the cribriform or reticulated aspect already described. Between these two extremes various intermediate forms have been recognized, and in this locality as

on the uterine face of the placenta itself, though the thin wall of the sinus was sometimes reflected on to the villi, at others the tufts were freely moveable and projected into the canal of the sinus.

It is evident therefore from these observations that the decidua serotina does not form that complete and continuous membranous septum between the uterus and placenta which has been described by Robert Lee and many other obstetricians, but that its continuity is in various localities interrupted, so as to allow of the penetration of many of the placental villi into the utero-placental vessels. And I may further state, in confirmation of the above, that I have invariably found in examining placentæ separated during the ordinary course of labour, patches of villi, projecting through the decidua, especially near the margins of the cotyledons. These patches were surrounded by a sharply defined border of decidua, which from its precise form was apparently a normal arrangement, and had not been produced by a tear or violent detachment of the decidua from the surface of the exposed villi during the separation of the placenta. These exposed tufts obviously corresponded to those which I have described as projecting into the utero-placental sinuses on the uterine surface of the attached placenta.

My observations therefore are in part confirmatory of those of Reid; but though I have seen the wall of a sinus reflected on to some of the villous tufts, which project into its canal, yet I have not found that these villi are by any means all so ensheathed; still less am I prepared to say with him, that the tufts throughout the entire substance of the placenta are everywhere enveloped by the inner coat of the vascular system of the mother. My observations also are in part confirmatory of those of Virchow, as I have found numerous villous tufts unensheathed by any such membrane, but projecting free and naked into the canal of the sinus. The consideration, however, of the precise relations of the lining membrane of the maternal vascular system to the tufts within the placenta—if, in short, each tuft possesses an investing membrane, such as Goodsir named the external membrane of the villus—must be postponed until the minute structure of the villi is described in a subsequent section.

It is evident, in all those localities where the placental tufts project into the utero-placental system of sinuses, that the maternal blood is brought into such close relation with the foetal system of capillaries, that important nutritive and respiratory interchanges can be effected between the two kinds of blood. The intimate relation, therefore, which can be so easily demonstrated in these localities, naturally leads one to infer that similar relations subsist throughout the entire substance of the pla-

centa, and gives additional weight to the arguments advanced in an earlier part of this essay, in favour of the intra-placental circulation of the maternal blood.

Whilst reflecting on these relations, it occurred to me, that by a very simple experiment the direct continuity of the intervillal spaces with the canal of the sinuses, supposing such to exist, might be easily shown, and a demonstration afforded of the mode in which the mother's blood was returned from the interior of the placenta into her venous system. I accordingly in a separated placenta, where the marginal sinus was uninjured, introduced an injecting pipe into one of the cotyledons situated near the edge of the organ, and very gently propelled coloured gelatine into the intervillal spaces. The cotyledon swelled up and the injection flowed both into the marginal sinus at the edge of the placenta, and into the sinuses situated in the decidual dissepiments which divided the injected cotyledon from those adjacent to it. But as it might be objected that some natural barrier between these sinuses and the interior of the placenta had been broken down by the force employed in injecting, I modified the experiment in another specimen. In this I opened the marginal sinus before the injection was begun, and, as my assistant slowly and gently depressed the piston of the syringe, I carefully watched one of the cribriform surfaces on the inner wall of the sinus, where a large patch of villi was exposed, and saw the coloured fluid ooze quietly from between the villi out of the intervillal spaces of the cotyledon into the canal of the sinus, and observed that no structure was torn down before this oozing began. No doubt then remained in my mind, that a natural communication existed between the intervillal spaces in the interior of the placenta and the utero-placental sinus-system of veins.

These sinuses are so related to the placenta, as to communicate with the interior of the cotyledons either at the outer edge of the placenta, where the so-called circular sinus lies, or where the sinuses lie within the inter-cotyledonary decidual dissepiments, or where they come into contact with the uterine face of the placenta close to the plane of entrance of the primary decidual dissepiments into its substance. The communication is not as if the sinuses terminated abruptly by open mouths, as has usually been described; but rather by possessing cribriform apertures in their walls as they lie in contact with the placenta. From the relation of the sinuses to the margins of the cotyledons, whilst the curling arteries penetrate their uterine surface near their centre, the stream of maternal blood passes through each cotyledon from its centre to its circumference, and is effectually brought into contact with the whole of the foetal villi.

The observations detailed in this section seem to me to put the question of the existence of an intra-placental circulation of

maternal blood into the category of established and demonstrated facts, and to deprive it of that inferential or even theoretical character which it has hitherto held, and owing to which its accuracy has from time to time been assailed by various writers.*—*Journal of Anatomy and Physiology*.

Transfusion of Milk in Cholera. BY EDWARD M. HODDER,
M. D., Toronto, Canada.

PREVIOUSLY to the last advent of cholera, twelve or fourteen years ago, I suggested to my friend and colleague, Dr. James Bovell, the propriety and probable success of transfusion of blood. He at once met me with the objection, that the supply would most likely fail, inasmuch as few persons would like to part with their blood during an epidemic of the kind, and if they did we could not be sure that the blood itself was not diseased. This appeared to knock my scheme on the head at once, but I began to reflect, and to ask myself, What is the nearest analogue of the blood? and milk came to my mind. The next question to be decided was, whether milk had ever been injected into the veins of man or animals, and what was the result? I found that Donne had injected it into the veins of dogs, rabbits, and birds, and that it did not kill them, but, on the contrary, he, with Wagner, Gulliver, and others, were of the opinion that the white corpuscles of the milk were capable of being transformed into red blood-corpuscles.

I then decided on the transfusion of milk into the human veins, should cholera pay us another visit.

At length the true Asiatic disease made its appearance, and found the City Fathers as unprepared for it as if such a disease had never existed. Dr. Bovell and myself volunteered our services, and an old shed on the hospital grounds (used as a small-pox ward) was made the temporary cholera hospital. The first two or three cases were moribund when brought in; but the next day, about noon (the hour at which the medical officers of the hospital made their rounds, a stout-built farmer, who had come to Toronto on business, was admitted. He was in a state of collapse, cold, pulseless, blue, and shrivelled; the secretion of the urine was arrested; there were vomiting and purging of rice-water fluid;—in fact, he seemed dying.

* When kindly revising the proof-sheets of these pages, Dr. J. Matthews Duncan directed my attention to an experiment recorded by Dr. Dalton (*Treatise on Human Physiology*, 1867, p. 615), who inflated the intervillal spaces in the attached placenta by blowing air into one of the vessels situated in the uterine wall. Dr. Duncan told me that he had himself not unfrequently seen in the newly detached placenta, bubbles of air freely move in the intervillal spaces from the decidual to the chorionic surface.

I immediately got everything ready, and then sent a message requesting consultation with any of the medical officers who might be in the hospital, when four gentlemen came, and I asked them the following questions:—"Do you consider this a genuine case of epidemic Asiatic cholera?"—"Certainly, and a very marked one." "Do you think anything can be done to save him?"—"Nothing; he is dying." "Would any medical treatment be likely to be of any use?"—"None." "Then he must die."—"Yes." "Then, gentlemen," I said, "I am about to try the experiment of transfusing milk into his veins."—"If you do you will kill him," was the reply. Thereupon I invited them to be present at the operation, but three out of the four left the building; the fourth remained, but would not assist. Everything being ready, I ordered a cow to be driven up to the shed; and, while she was being milked into a bowl (the temperature of which was raised to about 100° Fahr.) through gauze, I opened a vein in the arm and inserted a tube, and then filled my syringe (also previously warmed) and injected slowly therewith. No perceptible change, either for better or for worse, took place; so, after waiting two or three minutes, I again filled the syringe, and injected seven ounces more. The effect was magical: in a few moments the patient expressed himself as feeling better; the vomiting and purging ceased, the pulse returned at the wrist, the surface of the body became warm;—in fact, the man rallied, and speedily recovered without a bad symptom.

The next day a woman, an habitual drunkard, was admitted in the same condition as the above described man. I transfused fourteen ounces of milk in a similar manner, and in a few minutes the vomiting and other symptoms ceased, and she improved; but towards evening collapse came on, when I injected fourteen ounces more milk, and she also recovered, but after secondary fever.

The third case was admitted almost *in articulo mortis*, but he rallied for a time, then collapsed, as the woman did, and died during my absence from the shed. Had I been present I should have injected more milk into his circulation, and he might have rallied again.

Dr. Bovell and myself then applied to the Corporation for a good cow, and a few articles indispensably necessary for the comfort and well-being of the patients; these were refused, and we thereupon sent in our resignations.

[It is to be regretted that this most interesting experiment came to such an untimely end, and we join in the wish with which Dr. Hodder concludes his letter, that it may be repeated here on a large scale should cholera ever visit England again. We scarcely know whether it is necessary to add, even for the

information of English readers, that Dr. Hodder is a very distinguished and experienced practitioner, so that his evidence is most valuable and trustworthy. We would suggest, however, that it would probably not be necessary to take the milk direct from the cow; artificial warming would surely answer the purpose?—*Practitioner.*]

Action of Digitalis on the Blood-Vessels.—By T. LAUDER BRUNTON, M. D., D. SC., and ADOLPH BERNHARD MEYER, M. D.

INDEPENDENTLY of each other, and in different ways, we both arrived at the conclusion that digitalin causes contraction of the small blood-vessels*. Wishing to support our views by still more conclusive proofs, we took advantage of the opportunities afforded to us in the physiological laboratory of the Berlin University to perform together, in February 1868, some experiments on the subject. We are perfectly aware of their incompleteness, but circumstances having prevented us from continuing them, and the departure of one of us for a distant land rendering it improbable that we shall be able to resume them together, we now publish their results.

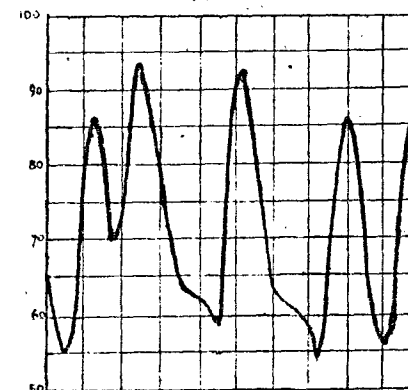
We believed that by a comparison of the form of the curves indicating the blood-pressure before and after the injection of digitalin into the circulation, we should be able to determine exactly whether it caused contraction of the arterioles or not. The kymographion we employed was that of Ludwig, as modified by Traube, and the experiments were conducted on dogs in the following manner. The animal being narcotized by hydrochlorate of morphia, a cannula was inserted into the crural artery, and a curve (Fig. 1) showing the normal blood-pressure was described. Digitalin, suspended in a small quantity of distilled water, was then injected into the carotid artery, and pressure-curves again described. Injection into the artery was employed because Blake† found that digitalin produced a much greater effect on the blood-pressure when introduced into the circulation in this way than if injected into a vein. A comparison of the tracings thus obtained, after the injection, with that

* T. Lauder Brunton on *Digitalis*: with some Observations on the Urine, London, 1868, p. 52, and A. Bernhard Meyer, *Zur Lehre von den Herzgiften in Untersuchungen aus dem physiologischen Laboratorium der Züricher Hochschule*. herausgegeben von Professor Fick. Wien, 1869, p. 71.

† *Ed. Med. Journ.*, 1839.

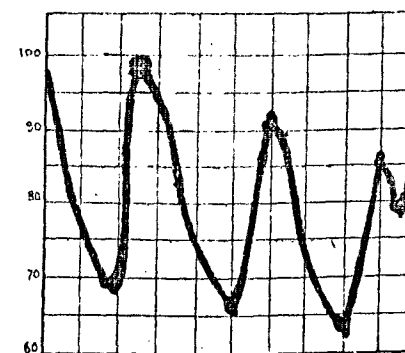
of the normal pressure and pulse (Fig. 1), showed a slowing of the pulse, accompanied by an increase in the mean blood-pressure,

FIG. 1.



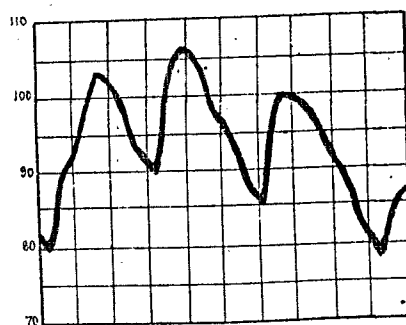
while the height of the wave occasioned by each cardiac pulsation remained much the same (Fig. 2). The pressure continued gradually to rise although the pulse not only became slower and slower, but the oscillations of the mercurial column at each pulsation diminished in extent (Fig. 3). This rise could be due either to the heart propelling a greater quantity of blood into the aorta at each pulsation, or to the arteries, contracting so

FIG. 2.



as to hinder it from escaping from the arterial into the venous system. The diminished height of the pulse-wave seems sufficient of itself to negative the former idea, and to show that the increased pressure can only be due to contraction of the arterioles, but we think that a still clearer proof is afforded by the form of the wave. The time occupied in the ascent of the pressure-wave (indicated by the horizontal distance between the lowest and highest parts of the ascending limb) is nearly the same in Figs. 1 and 3, but the descending limb of the latter sinks very

FIG. 3.



gradually indeed, while in the former it falls almost as quickly as it rises. What then is the explanation of this phenomenon? During the diastole of the heart, the sigmoid valves when healthy, as they were in this case, completely close the cardiac end of the aorta. The whole arterial system may then be compared to an elongated elastic vessel, from which fluid is issuing by a narrow opening. The greater the pressure of fluid in the vessel the more rapidly will it escape by the opening, the more quickly will the pressure consequently fall, and the more abrupt will be the descent of the pressure-curve. Now the mean blood-pressure in the normal tracing is somewhat over 70 millimetres,* and the maximum height of the wave 44, while in that taken when the action of the digitalin was greatest, the mean pressure is somewhat over 90 mm., and the maximum 104. The fall of pressure ought, therefore, to be more abrupt, but instead of this it is more gradual. This alteration cannot, we think, be explained by any oscillations of the mercurial column independently of the blood-pressure, and can only be due to contraction of the arterioles retarding the flow of blood from the arterial into the venous

* The true heights are of course nearly double those, but for convenient comparison with the tracings we have taken the numbers as they stand in the figures.

system during the cardiac diastole. In a recent paper, Boehm† considers that the rise in blood-pressure produced by digitalis, is chiefly due to the increased action of the heart, and that the condition of the arterioles has little or nothing to do with it. He seems, however, to interpret tracings of the blood-pressure in the arteries of mammals in the same way as those obtained from the excised heart of the frog, and apparently forgets that while in the latter the form of the diastolic as well as of the systolic curve depends on the heart alone, in the former the heart can have but little or no influence on the pressure in the arterial system during the diastole, since all communication between them is prevented by the closure of the sigmoid valves. The curves which he gives confirm our views, for they show the same gradual fall in the pulse-wave, after the injection of digitalis, that ours do, and being traced with Fick's spring-kymographion, are free from any fallacies due to oscillations of the mercurial column. The continued high pressure he observed during prolonged stoppage of the heart, and which he attributes to continuous cardiac systole, we would ascribe to contraction of the vessels so far as it is not due to changes in the respiration. If the arterioles were not contracted the pressure would fall, as e.g. in the experiments of Ludwig and Hafiz‡.

We next attempted to ascertain whether the slowing of the pulse is due to a direct specific influence of the drug on the roots of the vagus as supposed by one of us§, or to the stimulation of these roots by the increased pressure of blood in the cranium produced by the contraction of the arterioles, as supposed by the other.¶ In order to do this we diminished the blood-pressure by the inhalation of nitrite of amyl after it had become high, and the pulse slow from the injection of digitalin. If the slowing of the pulse were due to a specific action of the digitalin on the vagus roots, it ought to continue although the pressure falls, but if due to stimulation of these roots by the high blood-pressure, it should disappear whenever the pressure is reduced. Our experiments showed that whenever the pressure fell after the inhalation of the nitrate of amyl the pulse became quick. It might thus appear that the slowing is due in part at least to the high pressure, and not altogether to a direct influence of the digitalin in the vagus; but this must be decided by farther experiment.

Lastly, we tried to discover whether digitalis causes contraction of the vessels by acting directly on their walls or on the vasomotor centre. This we sought to do by observing whether the

* *Pflüger's Archiv*, v. 190.

† *Ludwig's Arbeiten*, 1870.

‡ *Brunton, Op. cit.*

§ *Meyer, Op. cit.*

injection of digitalin into the circulation caused any alteration in the calibre of the vessels of the rabbit's ear after the sympathetic nerve of the same side as well as both vagi had been divided in the neck. The vagi were divided in order to prevent the digitalin from slowing the heart, and thus disturbing the circulation, and the sympathetic to prevent any influence being transmitted to the vessels of the ear from the vasomotor centre. The results of these experiments were not constant, and we are unable to draw any definite conclusions from them; but the fact that the vessels of the ears were occasionally seen to empty themselves more quickly after the injection of digitalin than before, seems to us to indicate an action upon the walls of the vessels themselves.

The conclusions to which we have arrived are shortly, 1st that digitalin causes contraction of the arterioles. This is proved by the small height of the pulse-wave, and by its descent becoming more gradual after the injection notwithstanding the increased blood-pressure. 2nd, that the slowing of the pulse is probably due in part to the increased blood-pressure which results from the contraction of the arterioles. We gladly take this opportunity of expressing our obligations to Professor Rosenthal for the assistance and advice which he so constantly and kindly afforded us, and to Herr Merck of Darmstadt, to whose kindness we owe the digitalin we employed.—*Journal of Anatomy and Physiology.*

MEDICAL INTELLIGENCE.

(General Orders by the Governor in Council.)

Hospitals.

11th March 1873.

No. 68 of 1873.—The following General Orders by the Government of India, are republished:—

No. 196 of 1873.—With reference to G. G. O. No. 830* of the 22nd September 1871, the Right Honorable the Governor-General in Council is pleased to authorize the supply of one scoop and one box of dry-earth to each seat in hospital privies at such stations where the dry-earth system of conservancy is carried out.

The scoops and boxes will be provided by the Public Works Department and added to Form 148 "Public Works" published with G. G. O. No. 303 of 1872.

Order Books to be corrected accordingly.

Furlough.

No. 259 of 1873.—The Right Honorable the Governor General in Council is pleased to direct that the following shall be substituted for paragraph 2 of G. G. O. No. 103† of 26th January 1869:—

"2. Officers obtaining furlough on private affairs or medical certificate are at liberty to embark either at Calcutta or at Bombay, as they may desire, without obtaining special sanction from the Government. They must, however, be careful to report their departure in the prescribed manner."

* Madras G. O. G. 6th October 1871, No. 241.

† Madras G. O. G. 9th February 1869, No. 48.

Medical Department, Subordinate.

No. 900.

11th March 1873.

The following Resolution is published for general information:--

Resolution.—The Governor-General in Council is pleased to decide that Hospital Assistants employed in the Civil Department may, so long as they are actually serving in that Department, be allowed privilege leave in accordance with the Uncovenanted Service Leave Rules, on condition that no extra expense is caused by the grant of such leave.

Order.—Ordered that the foregoing resolution be communicated to the Home Department, and also to the Military Department.

(General Orders by the Commander-in-Chief.)

Doolies.

28th February 1873.

No. 17.—With reference to Section V. of G. O. C. C. No. 100, dated 15th September 1870, unserviceable doolies should be kept in store for the special conveyance of patients suffering from contagious diseases, and after being thus used, they should be destroyed by fire under the provisions of Clause X. of this Section.

2. Should it at any time be necessary to use serviceable doolies for similar purposes, they should subsequently be disinfected in the prescribed manner and repainted. They will then be available for issue as serviceable articles for ordinary use.

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c., from 1st to 31st March 1873 for securing the following rate of pension.

Names of Subscribers.	Children's date of birth.	Sex.	Rate of Pension secured.	To what period.	Payments how made.
					By Donation and Subscription. By Donation.
P. G. Fitzgerald...	5th Dec. 1872 ...	Male: ...	Full ...	To 21 years ...	
J. L. Ranking ...	1st Augt. 1856.	Female...	do. ...	*From 21 to D or M &c.	

N. B.—The rate of Pension marked thus * is additional to that previously secured.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
1st April 1873.

TO CORRESPONDENTS.

Assistant Surgeon L. C. NANNEY, *Received with thanks.*
 Do. H. J. HACKETT, "*"*
 Honorary Assistant Surgeon M. JAGANATHUM, *Received with thanks.*
 Inspector General of Hospitals B. M. S. *Received with thanks.*
 F. N. MACNAMARA, M. D. *Received with thanks.*

BOOKS, &c., RECEIVED.

Medical Record; *January 22nd, 29th, February 5th, 12th, 19th.*
 The Doctor; *February 1st.*
 Journal des Connaissances Médicales; *January 30th, February 15th, 28th.*
 Medical Press and Circular; *February 5th, 12th, 19th, 26th.*
 Indian Medical Gazette; *March 1st.*

The Secretaries, ROYAL MEDICAL BENEVOLENT FUND SOCIETY,
 OF IRELAND, *acknowledge with many thanks receipt of the following Subscriptions.*

					Rs.
Dr. W. Price, ...	...	...	for	1872-73.	" 20
Dr. Sibthroe, ...	...	...	"	"	" 10
Dr. W. Doyle, ...	...	...	"	"	" 20
Asst. Surgeon Ffrench, ...	...	...	"	"	" 20
Dr. W. J. Masteed, 1871-72; 1872-73; 1873-74	...	...	"	"	" 60
Dr. P. R. Martin, ...	...	...	"	1872-73	" 10

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THE MADRAS MONTHLY JOURNAL

OF

MEDICAL SCIENCE.

No. XLI.—MAY, 1873.

ORIGINAL ESSAYS.

ART. XIX.—*Report on the water supplied from the Calcutta Hydrants during the year 1872.* By F. N. MACNAMARA, M. D., Chemical Examiner to the Government of India.

THE water from one of the street hydrants has been examined each working day throughout the year as regards its transparency, and as regards the amount of chlorine and organic matter present in it.

Transparency has been determined by the examination of a column of water in a two foot tube. It was found defective on 70 days, as against 86 days of last year when such imperfection was noticed. Defective transparency is, in the case of this water, always due to the presence of very minutely divided clayey matter. This is the same stuff which is so largely present in the river water during the

rains, and is in a so finely divided state, and is so light, that the water must be allowed to stand for at least four or five days before it clears by subsidence—filtration through several folds of filtering paper does not remove the cloudiness. On some occasions the cloudiness became apparent in a very sudden and marked way, and was then accompanied by an increase in the organic matter dissolved in the water, but on other occasions a faint cloudiness of the water was not associated with increase of organic matter. This is a point which was particularly attended to as there has been dispute regarding it amongst observers in England, amongst whom some have held that access of cloudiness to the water must necessarily be accompanied by an increase of organic matter. I have, however, satisfied myself that this view is an erroneous one, and that loss of transparency is not necessarily accompanied by any determinable addition to the organic matter in the filtered water.

Chlorine.—On no day during the year has there been such increase in the quantity of the chlorine in the water as to lead to suspicion of tidal water being pumped into the reservoirs at Pultah. The largest quantity of chlorine found in the water was in the first week of May when it reached 9.2 parts per million (equal to 1.06 grains of chloride of sodium per gallon.) The smallest quantity found was in November when it fell to 3.9 parts per million. Two hundred and fifty c. c. water, 7 c. c. saturated solution of carbonate of soda, 25 c. c. Wanklyn's solution of permanganate of potash and potash 125 c. c. distilled off and Neple-rised. This is the plan uniformly followed in the examination of the Municipal waters.

Organic matter.—The following table shows the average amount of organic matter (expressed as ammonia obtained by distillation of the water with carbonate of soda, caustic potash, and permanganate of potash) for each week of the year.

Week ending.	Parts per million.
1872 January 6th	0.56
" 13th	0.56
" 20th	0.6
" 27th	0.65
February 3rd	0.56

Week ending.	Parts per million.
February 10th	0.57
" 17th	0.71
" 24th	0.5
March 2nd	0.49
" 9th	0.48
" 16th	0.43
" 23rd	0.4
" 30th	0.5
April 6th	0.4
" 13th	0.47
" 20th	0.5
" 27th	0.51
May 4th	0.9
" 11th	0.63
" 18th	0.8
" 25th	0.74
June 1st	0.76
" 8th	0.76
" 15th	0.8
" 22nd	0.7
" 29th	0.6
July 6th	0.65
" 13th	0.58
" 20th	0.65
" 27th	0.58
August 3rd	0.53
" 10th	0.5
" 17th	0.51
" 24th	0.58
" 31st	0.58
September 6th	0.66
" 14th	0.68
" 21st	1.34
" 28th	1.37
October 5th	1.5
" 12th	1.4
" 19th	1.4
" 26th	1.13
November 2nd	1.15
" 9th	1.06
" 16th	1
" 22nd	0.96
" 30th	0.9

Week ending.	Parts per million.
December 7th	1
" 14th	081
" 21st	09
" 28th	11

The organic matter was present in small quantity in the filtered water till the middle of September, when a great and sudden increase occurred, and the amount of organic matter continued large till the end of November at which time it slightly diminished, and since then up till the time (January 31st) at which I am writing there has been little, if any, improvement in the water. This is a point on which I wish to lay great stress as in respect to it the past season contrasts most unfavourably with the corresponding one of the previous year, for about the middle of November of 1871, the water became exceedingly pure, and continued so till the end of August 1872. Why did not a corresponding improvement occur on a termination of the past rains? I am assured that there has been no change at the works—that the processes of subsidence and filtration have been carried on in a precisely similar manner both years, while comparison of the analyses of the river water show that it had the same characters both years during the season under consideration. There has been indeed more demand upon the filters in 1872 than in 1871, for while in round numbers 49,000,000 gallons passed the filters one year, the quantity rose to 61,000,000 gallons during the next, there must therefore have been more rapid filtration, and this, however brought about, must have tended to the deterioration of the water. Further it seems to me probable that owing to this stress put upon the filters, especially during the season of flood water in the river, the suspended organic matter may have penetrated them farther than last year, and may be decomposing in them and adding to the soluble impurity of the water. Moreover, the condition of the settling tanks is such that they must maintain a considerable degree of impurity in the water. Great as is the advantage in some respects of these tanks—absolutely essential as is the separation of silt which they effect to the mechanical action of the filters, there can be no doubt that they serve as reservoirs which catch and hold an immense quantity of filth which decomposes in them, and is by and by given up to the water, so that the comparatively pure water of the river after the subsidence of the floods is fouled

by the stuff which has been deposited in the tanks during the preceding months. I lately compared the water of the river, of five tanks, and of the well which receives the filtered water—the water from each source was received into a bottle, and allowed to stand during 24 hours when the upper layer was carefully syphoned off and the ammonia of the organic matter determined, the results were as follows:—

Ammonia per million.

River water,	12
No. 1 Tank, cleaned last month ...	11
" 3 Do. in April 1872 ...	13
" 4 Do. in June " ...	1
" 5 Do. in February 1872. ...	11
" 6 Do. in June 1871 ...	15
Water from the well	08

The water from the tanks for these experiments was taken from the surface, but some taken from a deeper stratum of No. 3 tank, and analyzed at once yielded 18 parts of ammonia per million. I have no doubt that the water of No. 6 tank observed in this way would have shown a still larger amount of impurity, and I believe, that this No. 6 tank which has been working through two seasons, may be a very important factor in the continued impurity of the water. But possibly another cause is at work in maintaining the impurity, and I find it in this way. Experiments made in 1871, and recorded in the last Annual Report, established the fact that the water after leaving the well at Pultah purified itself very much prior to its distribution in Calcutta, losing about one-half its organic matter—but experiments, made lately, show that nothing of the kind is occurring now, and that the water as distributed in Calcutta contains little, if any, organic matter than the water before it commences its downward journey. Possibly the flow may be more rapid this year than last, and this may account in a measure for the difference I have alluded to, but I suspect that the real explanation lies in an accumulation of dirt, either in the main, or in the reservoirs at Tallah or in Wellington Square, which has been yielding up organic matter to the water and thus counteracting the purification which the water should naturally experience as it flows from Pultah to Calcutta.

The following table exhibits the state of the river water throughout the year, and the amount of work done by the filters upon it:—

	Ammonia of organic matter of River water in parts per million.	Total solid matter of River water in parts per million.	Ammonia of organic matter of filtered water in parts per million.	Total solids of filtered water in parts per million.	Number of days in the month of imperfect transparency of filtered water.	Total rainfall over the 24 Penguuals in inches.
January ...	23	350	057	226	0	1.59
February...	37	316	061	213	0	20.51
March ...	17	393	046	220	0	1.41
April ...	18	367	017	217	1	19.55
May ...	26	602	077	210	2	34.77
June ...	20	416	072	193	2	106.8
July ...	29	676	061	135	18	81.3
August ...	32	1,223	054	120	22	111.5
September...	30	746	101	116	13	80.4
October ...	29	680	14	125	0	89.5
November...	20	327	101	141	12	0.07
December...	18	280	095	210	0	3.5

It will be observed that the filters worked admirably up till the end of August, and through part of September. During August the solid matter in the water was reduced by the operation of the works to one-tenth the quantity present in the water of the river, while the organic matter was reduced to one-sixth, and it was only when the accumulation of silt upon the surface of the filter beds rendered the operations of raking the sand or removal of the surface sand necessary, that the filters became less effective.

On two occasions during August and October water was drawn for examination at the same hour on the same day from six hydrants in different parts of the town. The amount of organic matter and of chlorine in the water was found absolutely the same in each sample, proving, I think, that there is no accumulation of dirt in the street mains, and that there is no diffusion of dirty water from the soil into them.

ART. XX.—*Two Cases of Rupture of the Spleen.* By Assistant Surgeon HACKETT.

THE history of one of the following cases is incomplete in one very important point, no post mortem examination was made; but I think the symptoms as detailed below, justified me in the belief that death resulted from rupture of the spleen.

Case No. 1.

I had been attending for some time a young girl about six years of age of European parentage, who had suffered much from Intermittent Fever, and who just previous to her death was recovering from severe inflammation and ulceration of the fauces. I had only returned a short time from paying her a morning visit when a servant came running to me and said that the child's mother wished me to come at once and see her daughter who had suddenly become very ill. On arrival I found my patient in the following condition; face very pale, eyes sunken, body covered with a cold perspiration, heart throbbing violently and irregularly, pulse very quick. Her mother told me it occurred as follows; on the child getting up she was given a dose of castor oil which she shortly afterwards vomited up, complained of pain in her left side, became deadly pale and fell down insensible, in which condition she remained for about a minute. I asked her where she felt pain, and she placed her hand over the region of the spleen; it struck me at the time that very probably that viscus had been injured, although I had never noticed any enlargement of it. Expecting that peritonitis would ensue I ordered what I considered suitable treatment and gave instructions that the child was to be kept perfectly quiet. In the afternoon when I was on the point of setting out to pay another visit, the little girl's father arrived and said his daughter was much worse. On arrival I found as I expected that my patient was suffering from severe peritonitis, pulse very quick, abdomen greatly distended and very painful to the touch. I was afraid the case might turn out unfavourably, but I did not think danger was imminent. I was preparing to leave the house when a cry from the mother of the child called me back; I found the latter deadly pale and before even I was able to feel her pulse she gave a few convulsive gasps and was dead. From the time she vomited in the

morning until the time she died was about eight hours. On account of the excessive grief of the parents I did not like to ask for a post mortem examination. I believe this to have been a case of rupture of the spleen for the following reasons:—

1st.—The seat of pain; the stomach was not likely to have been injured as she neither vomited blood nor passed any in her stools afterwards during the day.

2nd.—The sunken eyes, pale face, violent throbbing of the heart were very significant of some severe internal injury with loss of blood.

3rd.—The occurrence of peritonitis.

4th.—It is very probable that the child's sudden death was caused by a return of the hæmorrhage.

Case No. 2.

In August 1872, the body of a man of the sweeper caste was brought to me by the Police to be examined; death was said to have been caused by the blow of a (Cavady) bamboo. I could get very little information about the history of the case, and in the trial which took place some time afterwards, the evidence on this subject was conflicting; however, the following account is, I believe, correct in many particulars. It seems that there was some kind of feast in this man's house, and that two men belonging to the same caste were offended because they were not invited, and they determined to give this man a good beating in payment for this slight.

In this object they were joined by a man belonging to another caste who also had a spite against the same individual. They went towards the house in which the feast was being held, and on the road outside they met the man they were in search of carrying some Mowa arrack; they at once set upon him and belaboured him with the bamboos which they had in their hands, and when they had satisfied their vengeance, they went off. Their victim got up and went off by himself to the hospital which was close by. The peon who was on night duty there found him lying among some boxes, in the verandah; he asked him what was the matter, but could not get any sensible reply, and came to the conclusion that the man was drunk, especially as he smelt strongly of liquor; he helped him to get up, and, at the same time, some of the man's friends came and took him away; he was, however, able to walk

without assistance; neither he nor his friends mentioned any thing about his having been beaten. He went to his house and laid down on his bed, and, according to his wife's statement, never spoke afterwards. He died about 4 A.M., being about four hours from the time he was first injured. He was reported usually to have enjoyed good health although he had had several attacks of Intermittent fever.

Post mortem appearances.

Body well nourished, no rigor mortis, no external marks or bruises, no bones broken, and no blood marks on the bamboo with which the blow was said to have been inflicted. There was a strong smell of Mowa arrack coming from the mouth. On cutting the scalp a good deal of blood came away, brain substance apparently healthy, sub-arachnoid fluid increased in quantity. On opening the abdomen which was distended, it was found to be full of liquid blood, with a large clot lying on the mesentery, the latter slightly congested; the clot extended up in the direction of the spleen; the latter was about four times its proper size; there were two lacerations in its concave aspect, one about 3 inches in length, $\frac{3}{4}$ inch in depth, and $\frac{1}{2}$ inch in breadth; it extended from where the blood vessels entered to the superior margin of the viscus; the other laceration was one inch in length, superficial, and close to the first described, but near the upper edge. Heart empty, small but healthy, lungs very pale, a few old adhesions between the surfaces of the pleura of the left side. Stomach healthy, contained congee water and Mowa arrack. Liver and kidneys healthy.

VEPERY HOSPITAL REPORTS.

ART. XXI.—A Case of Traumatic Tetanus cured by the subcutaneous injection of Atropine. By Assistant Surgeon L. C. NANNEY, Acting Surgeon, 2nd District.

Ragoo, æt. 24, admitted 21st January, with the distal ends of the second phalanges of the middle and ring finger of right hand, protruding from an ulcer which was caused by a burn ten days ago. There is rigidity of the temporal and masseter muscles. Can open her mouth. The right sternomastoid is very tense. Breathing 28, abdominal; pulse, 96; temperature, 100. Had strong spasms which came on

every 45 minutes drawing the body laterally and forwards. Bowels constipated, swallows with difficulty. Appearance of wound clean. Had on admission.

Enema of Turpentine and Castor oil which acted freely.

Inject hypodermically sol. atropine $\mathfrak{m}$ v. (gr. ii. to $\mathfrak{z}$ i.), every 6 hours

Milk Diet, mutton broth, 2 pts.

Vespere.—Temperature, 99° ; pulse, 100.

22nd.—Temperature, 99° ; pulse, 110. Muscles of left hand and abdomen very rigid; spasms come on every half hour.

Vespere.—Temperature, 100° ; pulse, 120. No action by atropine, pupils not affected.

Inject sol. Atropine, $\mathfrak{m}$ vi. every 6 hours.

23rd.—Temperature, 99° ; pulse, 110. No sleep. Bowels not open since the 21st.

Vespere.—Temperature, 100° ; pulse, 120.

24th.—Pulse, 106; temperature, $99^{\circ}4$.

Inject atropine $\mathfrak{m}$ vii. every 6 hours.

Vespere.—Pupils dilated, spasms not so violent. Temp. 99° .

25th.—Slept pretty well. Pulse, 92; temperature, 99° ; pupils still dilated; can open mouth freely; muscles less rigid.

Cont. treatment.

Vespere.—Pulse, 106; temperature, $99^{\circ}4$.

26th.—Pulse, 100; temperature, 98° ; slept well last night; less rigidity of muscles of neck and lower extremities.

Vespere.—Temperature, $99^{\circ}4$.

27th.—Pulse, 100; temperature, 98° . Improving; rigidity still present, and pupils still dilated.

Continue.

Vespere.—Temperature, 100° .

28th.—Temperature, 98° ; pulse, 100.

Vespere.—Temperature, 99° ; pulse, 100.

29th.—Temperature, 98° ; pulse, 100. Less rigidity and spasm.

Continue injection every 8th hour.

Vespere.—Temperature, $99^{\circ}4$; pulse, 100.

30th.—Temperature, 98° ; pulse, 100. Rigidity gradually decreasing.

Vespere.—Pulse, 100; temperature, 98° .

31st.—Pulse, 100; temperature, 98° .

Inject Sol. Atropine, $\mathfrak{m}$ vi. twice.

Vespere.—Pupils, normal. Temperature, 98° ; pulse, 100.

1st February.—Sat up for the first time; pulse, 100; temperature, 98° . Less rigidity of muscles. No tendency to spasm.

Vespere.—Pulse, 80; temperature, 98° .

2nd.—Temperature, 97° ; pulse, 80.

Vespere.—Temperature, 99° ; pulse, 100.

3rd.—Temperature, 98° ; pulse, 80. Rapidly improving.

Vespere.—Temperature, 99° ; pulse, 80.

4th.—Temperature, 98° ; pulse, 80.

Omit injection of Sol. Atropine.

Vespere.—Temperature, 99° ; pulse, 100.

5th.—Temperature, 98° ; pulse, 80.

No spasms; rigidity almost absent.

R. Mist Ferri et Quinæ et Strych. ter in die.

Vespere.—Temperature, 99° ; pulse, 80.

6th.—Temperature, $98^{\circ}4$; pulse, 80.

Vespere.—Temperature, $98^{\circ}4$; pulse, 80.

7th.—Temperature, $98^{\circ}4$; pulse, 80. Can walk a little without assistance.

14th.—Became so filthy in her habits and noisy in the wards that I was obliged to send her away. Left much improved.

Case of Hydatid Liver.

K., æt. 3, female, admitted 22nd Feby. 1873, suffering from œdema of the feet and enlargement of the abdomen. The mother states that the health of the child was good to within the last six months, when she complained of occasional pain in the right side and then noticed some tumefaction in the hepatic region. No constitutional disturbance was present. General health unaffected. Finding the abdominal enlargement increase, the mother resorted to native treatment without relief.

There is no history of syphilitic or strumous taint, and the patient appears to be fairly nourished.

On carefully examining the abdominal region, hepatic dulness extends from right nipple to 2 inches above the anterior superior spinous process of Ilium on right side, and from a line drawn from left nipple to middle of left Poupart's.

ligament. On firm pressure a deep sense of fluctuation was communicated to the finger. An exploratory puncture was made in the most prominent and dependent part when a gelatinous looking fluid exuded.

Warm Bath.

R. Potassii Iodidi. gr. ii.
ter in die.

R. Ol. Picis Jecoris 3 ss. ter in die.
Flannel bandage.

Surreptitiously removed by the mother two days afterwards.

Remarks.—An important feature in this case is the extreme youth of the child, for I find on consulting Trousseau that 14 cases under the age of 15 years were all that could be collected, to which he adds only 3 from his own practice; half of the 14 were persons of 12, 10, 9, and 4 years. I had not consulted the author in question until after the mother had absconded with the child, dreading, I imagine, further operative interference; but on reading the article on Hydatid cysts of the liver referred to, I find a case corresponding exactly with the present one. (Vide page 261, para II. of Trousseau's Clinical Medicine.)

Although the case was removed from my care before I had had sufficient opportunity of watching its progress, still, it was satisfactory to have diagnosed the disease before operating, by introducing the trocar and making an exploratory puncture, to find that a fluid at first limpid afterwards sanguinolent exuded, which obstructed the canula. Taking the above into consideration I think I am justified in stating the case to be one of Hydatid disease of the liver. It is quite possible that a spontaneous cure might, in this instance, have been effected by the gradual drawing away of the contents of the tumour as the result of the exploratory puncture. In this opinion I was strengthened by observing, during the short time that the child remained after the operation a steady diminution in the size of the abdomen generally as ascertained by careful measurements. The appearance of the child also improved.

ART. XXII.—*Annual Medical Report of the Mysore Palace Dispensary.* By M. JAGGANATHUM, Honorary Assistant Surgeon, in charge.

The Palace Establishment contains the following number of departments:—

Killay Cutchery	...	...	...	...	587
Zillo Cutchery	...	...	...	...	450
Havasarada Hoblie	...	...	...	...	404
Samoogada Khas	...	...	...	...	260
Do. Ooligai zenanah	...	...	...	...	149
Marahmut Cutchery	...	...	...	...	204
Chamoondee Tottee	...	...	...	...	249
Baugauyet Cutchery	...	...	...	...	197
Aswasalah	...	...	...	...	164
Kurotty	...	...	...	...	152
Guardian's Office	...	...	...	...	78
Students of the Royal School	...	...	...	...	50
Miscellaneous	...	...	...	...	56

Total... 3,000

History.—For the above establishment and for some dependants of the Palace the present Dispensary was opened in the month of September 1871 and placed in charge of the undersigned. At the commencement, a strong aversion to submit to European treatment was shown by some members of the Royal family; but when they came to perceive by experience, the beneficial results of that treatment, they gradually gave up their ancient prejudices. They have now begun to appreciate the value of English remedies, and constantly apply for relief from the Palace Dispensary.

Cases treated.—The register of sick exhibits 294 cases, as treated during the past twelve months, *i. e.*, from 1st October 1871 to 30th September 1872. Of the above admissions, 119 were entered under the general head of Fevers; 27 diseases of the respiratory organs; 19 Dracunculus; nearly 29 diseases of the stomach and bowels; about 13 rheumatism; more than 25 suffered from abscesses and ulcers; 15 skin diseases; 19 venereal affections; 14 diseases of the eye; and about 14 contusion.

No cases of Epidemic Cholera occurred during the official year under consideration.

The statement below gives the details of the 294 cases being the total number treated.

Admitted	...	...	...	...	294
Cured	...	...	...	...	268
Died	...	...	...	...	2
Relieved	...	...	...	...	1
Remained on the 30th September 1872	...	...	...	...	23

Daily average attendance, 32½.

The names of the members of the zenanah, Rajah Bundos, and their attendants, and of some out-patients also connected with the Palace, who received the benefits of the Palace Dispensary, were not brought on the strength of the sick list of the institution, and I may here remark that the number under this head has not been inconsiderable.

Fevers.—The type of fever that chiefly prevailed during the year under report in this locality, was the Intermittent or quotidian character; tertian and quartan were of rare occurrence. The former disease has been known to yield to the usual treatment; but tertian and quartan to exhibit some obstinacy for a considerable period. Complication of the spleen is a frequent concomitant of fevers in this district. The generality of the natives of this country possess an erroneous idea that Quinine prevents the occurrence of fever only for a time; but sooner or later the febrile disturbances relapse on using butter-milk, or any such cooling aliments. Under this false impression, they take this medicine with some suspicion, and some positively dislike the administration of this valuable alkaloid. This circumstance in my practice induced me to find a substitute, and the following recipe has been proved to answer well in mild cases. A dose of Calomel with James' or compound Antimonial powder is usually prescribed prior to its administration.

Compound Infusion of Gulancha.
(Infusum Tinosporæ compositum.)

- R. Gulancha (அமுர்தவள்ளி) 3 i.
Mollugo Cerviana (பரப்பாடகம்)
Coriander (கொத்துமல்லி)
Licorice root (அகிமூரம்)
Rose petals (ரோஜாப்பூ)
Cardamoms (ஏலரிசி)
Limo peel (எலுமிச்சம்பழத்தோல்) 3 ss.
Warm water, 3 x. Mix.

Macerate in a covered vessel for 2 hours, and strain.

Dose.—3 iss. to 3 ii. 2, 3 or 4 times a day.

When the bowels appear to be costive, a small quantity of Senna leaves is added to the ingredients. With regard to Brahmins, Ursoos, Sivachars and other prejudiced sects who refuse to take any liquid from the hands of a Sudra, the dry ingredients are given to them with the necessary directions. The drugs are simple, and can be procured easily at any time and in every place. Natives have begun to place greater value and faith in this than in any costly medicines.

Decoction of Nim bark has been sometimes substituted for Quinine, and its administration has been also much in favour with natives.

Diarrhœa and Dysentery.—Admissions under these heads were greater during the months of March and April than in other parts of the year; they were mild in character and have shown disposition to yield to the ordinary course of treatment. These diseases arose chiefly from sudden atmospheric changes and not so much from errors in diet. In native practice, especially for children, the following compound powder of catechu acts admirably in bowel disorders.

Compound powder of Catechu.

- R. Catechu (in powder) கரங்கட்டி 3 x.
Rhei Succedaneæ, (in powder) கர்க்கடகசிங்கி 3 xv.
Fenugreek (fried and powdered) வெந்தியம் 3 xx.
Cumin Seeds (fried and powdered) சீரகம்.
Nutmeg (in powder) ஜாதிக்காய்.
Gooseberry (in powder) தேவவிலந்தல் 3 v. Mix.

Dose 3 ss. to 3 i.

Dracunculæ.—The people of Mundy Pettah were more liable to this disease than people in other parts of the town. I am disposed to think that this malady arises from the use of the Poorniah's Canal water, which appears to contain the larvæ of the Guinea Worm, and this view is supported by the fact that those people who use Karanjee water are markedly free from this disease. The hot season appears to be most favourable for its propagation. If the worm happens to get into the system once, it sticks fast and keeps the victim in bed, with intense pain, for months together. Poultices of a cooling and demulcent character are better suited for allaying the irritation and for keeping the patient calm; and I have seen in the course of my practice, that

poultices of Bandacoy, Fenugreek or country aloes answer this end better than common poultices of rice.

Death.—In the year under report, a high official of the Palace died of Diabetes Mellitus. He was a strong and hearty man; he had the disease only for a short time, for which he took various native medicines, but derived no benefit from them. Symptoms of dyspepsia were also present, for which small doses of extract of Nux Vomica in combination with compound extract of Colocynth were prescribed. He, after a week, derived much benefit and enjoyed pretty good health for some days; but afterwards owing more to mental despondency than to the effects of his complaint, he rapidly lost flesh with excessive nervous depression, coma supervened, and the patient soon succumbed to the disease.

Requirements for the Dispensary Building.—The want of suitable premises for the Dispensary is much felt. The building should have a capacious hall to receive patients, a store room, a compounding room and an examination room. The addition of a privy to the Dispensary building is indispensable.

Assistants.—I respectfully beg to bring to the notice of the authorities concerning my difficulties, to carry on the work intrusted to me without an assistant; and it is hard and vain to expect a single person to perform his duty with any satisfaction, when he is overburdened with work. I have now to attend both to the Dispensary and to the out-patients, as well as to the calls for professional aid from the high officials of the Palace. In addition to these various duties, I have myself to perform the important work of compounding without proper aid.

Furniture.—Application was made some months ago, for the supply of two almshouses, one for the preservation of valuable medicines, and the other to lock up separately those of a poisonous nature. They are still due, and an order for the speedy supply of the above is humbly solicited, as without them it has been found difficult to secure medicines from rats and bandycoots.

Peon.—The addition of a peon to the institution would be of an immense value, and the want of such a servant gives now much inconvenience in the due performance of Dispensary duties.

Servants.—The servants who are now placed under my disposal are three, *viz.*, one Camaty from the Marahmut

department, one Sivachary for the supply of water from Bedethy department, and a nurse to attend the female inmates of the Palace. The addition of a Camaty would be of great help to the one in the establishment and the Dispensary work would be carried on with much ease and efficiency.

Sanitation.—The steps that have been taken by the authorities for the improvement of the Palace, in a sanitary point of view will, when they are carried out, give spacious halls for the accommodation of the inmates of the Palace, pure atmospheric air for respiration, good water to drink and bathe, and comfortable places in which to walk about and in fact every thing necessary for the enjoyment of good and sound health. Capital arrangements have also been made for perfect drainage, special attention has been given to the construction of latrines so as to accommodate the large number of female servants.

In conclusion I beg to suggest the introduction of the examining system, with reference to the articles of daily consumption supplied to the inmates of the Palace, as is the case in many public institutions. This system, I am sure, will highly promote the wishes of the authorities to place the sanitary condition of the Palace on a satisfactory footing.

Vernacular Medical Class.—A Class by the order of the Palace authorities has been formed in the Dispensary for the education and training of the sons of the Palace native doctors and others in European principles. The class was commenced with twenty-five pupils. The students receive instruction in the Vernacular. The subjects of instruction are:—the Essentials of Anatomy, Popular Physiology, Elements of Materia Medica and Therapeutics. Three hours daily in the evening are devoted to their tuition. The class students for want of proper stimulus, are gradually falling off, and at present the daily attendance is only fourteen.

The class students in general have made considerable progress in their studies and they all exhibit zeal and great interest in the study of the healing art. If encouragement of some sort be not shown to the most deserving, the students are likely to flag in zeal, and grow indifferent to their studies, and thus the object of the authorities, to give native physicians the benefit of English training, would, I fear, be defeated.

I respectfully beg to bring prominently the names of the Pundits marginally noted to the favourable consideration of the Palace authorities. These Pundits or Native doctors were in the

Narasa Pundit and Murry Chetty.

Palace employment for a considerable period. When reduction in the Palace establishment took place, their services were dispensed with on gratuity. They are well up in their profession, as far as Native treatment goes, and I am happy to state that since their admission into my Medical class they have gained a considerable knowledge of European Medical Science. Full confidence can be placed in their capacity. Narasa Pundit and Murry Chetty highly deserve every support and encouragement for their past and present services; and I strongly recommend, when circumstances permit, their re-admission into service. Their assistance to me in carrying on the Dispensary work is very great, and had it not been for their valuable aid it would have been impossible for a single person like myself to have managed the work as it now stands in the Palace Dispensary. Narasa Pundit with what little he knows of English assists me in writing the prescription-book.

Student Abbah Hussain takes considerable interest in the study of English medicine, and uses his best efforts to improve himself. He also deserves every encouragement.

Practical Instruction.—A few students under instruction attend the Dispensary in the mornings for practice.

Requirements for the Class.—To instruct in Anatomy and Physiology without illustrations is very difficult and I hope that the Dispensary will be supplied with these at an early date. If as a temporary measure a Surcar draftsman be attached to the Dispensary, his services would be of some value to the class for the present.

ART. XXIII.—*A case of Snake bite.* By 1st Class Hospital Assistant C. APPIAH, in Medical charge of Police Hospital, Ellore.

BALAJEE, 2nd Class Constable æt. 25 years, General No. 372, was admitted, to Police Hospital, at about 11 A. M., on the 23rd January 1873, in an insensible state, reported to have been bitten by a spotted snake, on the dorsum of the right foot on Saturday 18th January 1873, at about 9 P.M.

The right side of the body swollen enormously from the leg up to the chest, being about double the size of the opposite side; the leg looks dark in color, pits on pressure; bleeding from the nose; tongue flutters when answering questions; pulse full and quick; unable to sit without assistance; urine of high color, bowels costive. Before admission into Hospital various native remedies were tried, specially Cheriatta pepper with some congee water. The wounds were caused by fangs; loss of sensation at the foot and leg when punctured with lancet, cupping also applied to the calf of the leg, no proper bleeding, there is slight venous exudation from the wounds, feels severe pain above the knee.

R. Brandy, 3 iv.

Liquor Potassæ, 3 ii.

Aquæ, 3 ii.—Ft. haustus.

Divide into 4 doses.

One ounce and half every 20 minutes.

The whole limb well washed with a weak solution of Liquor Potassæ, strength one drachm to a bottle of water.

The pure Liquor Potassæ applied over the wounds, the bandage steeped in solution of Liquor Potassæ and applied over the wound and constantly kept moist with the same solution.

Enemata composed of

Brandy, 3 i.

Liquor Potassæ, 3 i.

Magnes Sulph, 3 iss.

Ol. Ricini, 3 ii.

Aquæ, 3 xxiv.—Ft. haustus.

Divide into 3 portions till the bowels be moved.

At 1 P. M.—The patient was under the influence of the brandy; no bleeding from the right nostril.

R. Brandy, 3 viii.

Liquor Potassæ, 3 i. and 20 m.

Aquæ, 3 iv.—Ft. mist.

One ounce and half for a dose every 3rd hour.

At 6 P. M.—The bowels moved twice, talks reasonably, swelling on the right leg just the same.

24th.—This morning talked well, bowels once moved during the night, the swelling from right side partly subsided, the dark color on the right side and thigh has disappeared, no proper rest during the night, bleeding from the right nostril commenced.

Continue mixture with *Liquor Potassæ and brandy.

At 12 A. M.—Complains of thirst, talks incoherently, pulse quick and full.

Liquor Potassæ, 3 i. to a bottle of water for occasional drink.

Continue Sol. of Liquor Potassæ to the affected limb.

Vespere; 6 P. M.—I observed bleeding from the nostrils accompanied with clots of blood, skin warm, pulse thready and quick.

Continue mixture.

25th.—This morning swelling of the affected limb subsided, bowels moved 4 times during the night with offensive smell, complains of weakness, pulse thready and quick, eyes sunk, respiration quick and short.

Continue mixture.

At 10 A. M.—Pulse imperceptible at the wrist, bowels moved involuntarily twice with green watery motions, urine of high color, no answer to questions. At a quarter to 12 A. M. expired.

The remedy may have proved successful; the man was brought to Hospital five days after the occurrence.

ART. XXIV.—*Chemical Examination of the Bark of the Azadirachta Indica.* By J. BROUGHTON, Esq., Government Quinologist.

(Communicated by the Inspector General, I. M. D.)

The use of the bark of this well-known tree the *Azadirachta Indica*, generally called the Nim tree is quite general throughout the whole of India as a tonic and febrifuge. It is generally employed in the form of a decoction, though sometimes as powder, and has been stated by certain English authorities to have the same febrifuge qualities as Cinchona bark. The taste of the bark is intensely bitter; the inner layer or liber is, however, by far the bitterest. The tree being very handsome, and the wood of value, it is well known in avenues; the plants generally bearing marks of having been robbed of their bark for medicinal use. The pinnate leaves have also an intensely bitter taste, and are employed in native medicine; though not as a febrifuge, being used as a poultice externally, and are said to have a powerful effect in preventing glandular tumours from com-

ing to maturity. They are also employed by natives in their fresh green state to cover the bodies of patients suffering from small pox, though, I believe, this is done rather from a religious than a medicinal motive. The seeds yield a considerable amount of oil, which has also a strong bitter taste, is used for lamps, and in medicine. The roots are said to have vermifuge properties, but I have not examined them. The main virtues of the tree reside in the bark.

The investigation has been a matter of much labour and difficulty from the circumstance of the bitter principle having scarcely any definite qualities, it being a neutral resin. It is slightly soluble in water, and hence the decoctions of the bark are intensely bitter, though water will not extract the whole present. To obtain it in purity the bark is exhausted with spirit of about 60 per cent, the filtered tincture precipitated with water, the dried precipitate again exhausted with benzol, again evaporated, again exhausted with carbonic disulphide, then by dry ether, and finally by absolute alcohol. The last exhaustion causes the separation of a small amount of a white transparent substance crystallizing in fine needles, which is quite insoluble in water, has no taste, and consists of carbon, hydrogen, and oxygen. Obtainable in but small quantities it has not been satisfactorily analyzed, and has the general characters of a crystalline fat though fusing at 175° C. It is certainly not the effective principle of the bark nor an alkaloid.

The resin purified by the successive solvents is a dark brown somewhat soft resin of agreeable smell, resembling that of the bark. It is slightly soluble in water and entirely in all the foregoing solvents, but not in fixed oils. In any dilute solution its bitter taste is strong, but not disagreeable. It is soluble in strong boiling solutions of the fixed alkalies, from which acids again precipitate it apparently altered, likewise in strong sulphuric acid by which it is also altered. It fuses at 92° C.

The determination of its true chemical formula has been a matter of great difficulty, and labour from the circumstance of its refusal to combine with other substances in a definite manner. It was finally determined by the discovery of a nitro-compound which yielded a silver salt, not however crystalline. From the analyses of these I ascribe to the resin the formula $C_{30}H_{50}O_{11}$. Its nitro-compound is formed in the usual manner by nitric acid and precipitation

with water, is yellow, uncrystallizable, somewhat soluble in water, more readily in alkalies, and having the formula $C_{30}H_{46}(NO)_4O_{11}$.

The resin is, therefore, not in any respect an alkaloid, as it contains no nitrogen. Its chemical constitution appears to me scarcely to confirm the ascribed anti-periodic febrifuge qualities of the bark, though doubtless the bitter solution of the resin may be a good tonic. If required for medicinal purposes it will be most conveniently employed in alcoholic solution. As the bark varies very considerably in its content of the bitter resin, a direct tincture would be unsuitable, but the impure resin after the application of benzol in the foregoing process of preparation would be fit for solution in alcohol and employment in medicine.

It is singular that native physicians never appear to have employed a tincture of the bark instead of an aqueous decoction. From some conversation I had with a native physician in Bengal I believe it is the native religious dislike in that country to the use of alcohol which has prevented its use for this purpose.

The leaves contain a small amount of bitter substance of a similar nature, but which is far more soluble in water. The same substance is also contained in the bark in addition to the one described. It has very similar properties to the resin, of which it is a hydrate. No peculiar alkaloid is contained in the leaves. The oil contains a small amount of the bitter substance of the leaves, not the resin of the bark. The powerful smell of the tree is well known, but it is not due to the presence of a sulphuretted oil as has been surmised; indeed, I have not succeeded in obtaining an essential oil from the tree. If the bark is distilled with water, the distillate has the perfume of the tree, but no oil is perceptible, though it has the power of decolourizing potassic permanganate.

A condensed account of our present knowledge of the therapeutics and chemistry of *Azadirachta Indica* is to be found in the Indian Pharmacopœia, p. p. 53 & 443, from which, however, I differ in some points.

ART. XXV.—*Notes kept during the Circuit season of 1872.* By E. S. MAYLEY, Apothecary, Collector's Establishment, Bellary.

January 4th. HOSPET TALUK. *Darogee*.—Some fever prevalent; some applicants for fever and cough medicine, and aperients and emetics. Guinea-worm prevalent, water from tank and wells.

8th.—*Kumply*.—Guinea-worm prevalent mostly among the Baïndus and shepherds, water from wells and the Toongabudra; small-pox prevalent. Sub-Magistrate complains of Taluq vaccinator not visiting; made arrangements to vaccinate on the 9th, but a case of murder and wounding, occurring some 15 miles away, was directed by Collector to proceed as early as possible to examine the cases and give evidence. Did not return to Kumply. Some applicants, complaining of fever and rheumatism.

10th.—*Kamlapur*.—Guinea-worm said not to be prevalent, water from tank and wells; the tank is supplied by a channel from the Toongabudra; some fever prevailing and fever medicines in requisition.

16th.—*Hospet*.—Guinea-worm prevalent, water from wells; Civil Dispensary here.

18th.—*Naraindeverukerra*.—Guinea-worm prevalent, water from wells and tank; some applicants for advice.

20th.—HUDAGHULLI TALUK. *Tumberhulli*.—Guinea-worm seldom prevalent, water from river by channels, and a rivulet a little way from the village; a case of dislocation of lower jaw, fever prevalent, villagers state when guinea-worm does prevail it is easily cured; some applicants for fever and cough medicine; weather close and cloudy.

23rd.—*Humpasagur*.—Tahsildar reports that small-pox is prevalent in some parts of this taluq. Guinea-worm prevalent, water principally from the Toongabudra, some cases now in the village, yet the people say it is not so common in the villages on the banks of the river, as in other villages away from the river. Extracted a tooth; went among the villagers, informed them small-pox was prevalent in this and the adjoining (Harponhuli) taluq, and asked them to allow me to vaccinate their children; though they acknowledged the benefits of vaccination, I could not get a subject to operation. Applicants for fever medicine. The Tahsildar and others state that fever becomes

prevalent with the setting in of the cold season, i. e., at the end of the N. E. monsoons. No vaccinator in this taluq.

25th.—*Soovinkulli*.—Guinea-worm said to be prevalent in the hot season, some cases now in 2 or 3 weavers, Lingaites; water from river and wells, some applicants for dressing and skin diseases.

26th.—*Huvinkudaghalli*.—Cusbah of taluq Hudaghalli; water from a stream and wells, latter abundant in gardens all around the village, guinea-worm prevalent, asked the Reddi this morning to make it known in the village that I would vaccinate all desiring the operation, as the Collector with establishment stays here till 30th instant.

28th.—*Huvinkudaghalli*.—Many applicants since arrival here for aid, and attended to all as far as medicines, &c., would allow; some cases of guinea-worm now in the village; a case of tumour in right upper jaw quite covering all the back teeth, could do nothing, this was in a boy 10 years old, advised parents to take him to Hospet or Bellary. Tertian and quartan Intermittent fevers prevalent now in this and surrounding villages. No subjects for vaccination forthcoming.

31st.—*Hirahudaghalli*.—Guinea-worm prevalent, water from tank and wells. Some applicants, suffering from fever, venereal and rheumatism. The cases of venereal are most lamentable. Primary and secondary in every case almost, some have been treated by hakims with mercury but without relieving the patients, but rather making them worse.

February.—2nd *Holal*.—Guinea-worm prevalent, water from wells which are abundant.

5th.—*HARPONHULLI TALUK. Alwagul*.—Guinea-worm prevalent, water from a nullah and river. Small pox in some parts of this taluq. In an epidemic form in this village some 2 months ago 18 deaths registered from small-pox. No vaccinator in this taluq.

6th.—*Neelgond*.—Guinea-worm prevalent, water from wells; at this and the preceding village many applicants for dressing.

7th.—*Harponhulli*.—Guinea-worm prevalent, water from wells; many applicants for medicine, fevers principally. Small-pox in the town now. Syphilis and Gonorrhoea as prevalent here as in the Hudaghalli Taluq.

12th.—Since arrival here (*Harponhulli*) one man asked to have his child vaccinated, but did not make his appear-

ance again. The taluq overseer's writer brought his child whom I vaccinated.

13th.—*Telegi*.—Guinea-worm prevalent, water from wells. No small-pox. The Madhiga (chucklér) portion of this village distinctly state, that none of their people ever get guinea-worm, but that all the higher caste get it plentifully, and they, the Madhigas, give the reason for this, viz., that they have a well for their own use, and that they (the Madhigas) are not allowed to use the wells which the caste people use, and there is one well in particular to which the people attribute the guinea-worm and which nearly all the caste people use, owing to its being a large square well with steps, most of the others being the small draw wells, and not convenient.

14th.—*Telegi*.—Yesterday spoke to the Reddi and some of the inhabitants regarding small-pox and vaccination, telling them small-pox was prevalent in the taluq, especially in the cusbah village; only three consented to be vaccinated; this morning vaccinated these three, and with the help of an influential ryot (a Mahomedan) vaccinated ten from crusts powdered. Two cases of fever dying; several cases of ulcer, rheumatism and catarrh attended to.

15th.—*Telegi*.—Vaccinated five children this morning from crusts.

16th.—*Kunchikerra*.—Villagers say guinea-worm is not prevalent; water from tank, except in times of scarcity, when they resort to some well a little distance from the village.

17th.—*Arsekerra*.—Guinea-worm prevalent people say in hot weather, and mostly in cultivators; water from tank, and when this runs dry, they dig in the tank, rather than use the wells behind the tank, which are numerous. Perhaps the distance from the village is the reason.

Small-pox prevailing; saw one case in a child of 3 years of age, it was mild, and the epidemic is evidently dying out; the Reddi and others say it was more severe two months ago.

Vaccinated 36 children, and could have done more, but for want of lymph. No vaccinator in the taluq.

20th.—*Muthihulli*.—Inhabitants state that guinea-worm prevails occasionally. The Hugry, a small stream, supplies the drinking water, and the people say they use well water only for irrigation and for cattle. They say positively that in the driest season they find water by digging a little in the bed

of the stream and *never* use the well water for drinking purposes. The few cases of guinea-worm that occur may be accounted for by some heedless people using the water from the wells, or using the water in other villages while out on business. No small-pox.

21st.—KODLIGHI TALUQ, *Cottoor*.—Guinea-worm said not to be prevalent, water from wells.

23rd.—*Koodlighi*.—Guinea-worm prevalent, water from wells; fever very prevalent, people think fever is due to the impure water.

1st, *March*.—*Bunnavakul*.—Guinea-worm prevalent, water from wells.

2nd.—*Hosshulli*.—Guinea-worm prevalent, water from wells.

6th.—*Goodicotta*.—Guinea-worm prevalent, water from wells and tanks. Removed a large tumour from dorsum of right foot of a female; bleeding slight, checked by cold and pressure.

16th November 1872.—*Hirrihul*.—Crops fair, water from wells.

18th.—*Anthapur*.—Nothing particular, water from wells.

25th.—*Roopungodee*.—Dengue prevailing, crops fair, water from river by channels.

28th.—*Koorgode*.—Dengue prevailing; water from wells; crops fair.

29th.—*Koorgode*.—The Collector having directed me to try the system of batta to children on being vaccinated, myself with the Tahsildar, Mr. J. G. Firth, and the taluq vaccinator and village Reddi went round, and after some little opposition, commenced work in Madigha huts and gradually in the wealthier parts of the village, and succeeded in three hours operating on 45 children at one anna each child, making a total of Rupees 2-13-0. Some cases of fever, ulcer and itch for treatment. Raining off and on since morning, weather cloudy and cold.

30th.—*Koorgode*.—Went round the village, again this morning and vaccinated 24 children giving an anna to each. Even this failed to entice many, who, though they know all about the vaccine disease from commencement, yet in a very quiet but determined manner, refuse to have their children operated on.

1st, *December*.—*Koorgode*.—Down with the Dengue fever; came on last night.

2nd.—*Koorgode*.—Fever continues on me. Heavy rain.

3rd, *Sirugary*.—Unable to move about. Dengue prevailing here. Crops fair. Water from wells. Reduced a dislocation of the elbow (radius and ulna backwards.)

5th.—*Tekekota*.—Dengue prevalent, water from wells.

6th.—*Siragoopah*.—Dengue in a mild form here. Water from Toongabudra by channels.

9th.—*Raravec*.—Dengue prevalent. Water from the Hugry.

10th.—*Suntakodloor and Baldoor, Alur Taluq*.—Dengue in both these villages, and small-pox in the former. Present at the carrying out of a sentence of whipping 50 lashes; vaccinated 16 children in Baldoor giving the anna to each child. Water from nullah and wells.

11th.—Vaccinated 42 children in Suntakodloor, giving the anna to each child.

13th.—*Holagoondy*.—Could not move from pains of Dengue. Some cases of ulcer treated.

14th.—*Goolenen, right bank of Hugry*.—Dengue, a case of ulcer for treatment.

17th.—*Alur*.—Dengue prevalent, water from tank and wells.

18th.—*Alur*.—Removed a tumour (fleshy) from between two grinders in right lower jaw of a female. Tumour about the size of a pigeon's egg. Some bleeding checked with Tinc. Ferri.

19th.—*Alur*.—Went round the village and vaccinated 28 children giving them the anna each, this being the Head Quarters of the taluq vaccinator. Vaccination is pretty well known and many bear marks of the operation, yet it would appear the batta of one anna entices more to be vaccinated as the taluq vaccinator informs me, he only performed 40 operations in the whole taluq during the month of November, and now with the anna batta in 3 villages only, 86 operations have been performed. Dengue being very prevalent all over this taluq is one cause and a great one too of the small numbers of the vaccinator last month; and the people bring forward to me the prevalence of Dengue, as a reason why children should not be vaccinated. Several applicants for treatment, viz., for Ulcers, and Rheumatism. None come to be treated for Dengue as the natives believe it is a visitation of their God whom they call "Mootooku Mauriama" and should be treated; and in some villages, the people who had evidently observed the late occultation of Venus, were under the impression, that there was some connection between this and the prevalence of Dengue.

ART. XXVI.—*On Erysipelas of the head and face.* By
T. GANAPATHY PILLAY, 3rd Class Hospital Assistant.

I was called in by a friend to see an old man named Mootoosawmy, aged 46 years, on the 16th January 1873, who was then suffering from erysipelatous inflammation of the head and face. Ten days since was exposed to cold, after which he had rigors, attended with pain in the epigastrium, vomiting, &c., which continued three days, when he felt a burning heat in the face, which became red, much swollen and very tender. There was much constitutional derangement. He has been taking Saline medicine and flour with camphor has been sprinkled over the face. On the 26th January erysipelas appeared to be on the decline, but the face is still red and swollen, desquamation of the cuticle over the nose, bullæ have to-day presented themselves on each cheek, tongue loaded, but moist, pulse 86, bowels rather costive. Warm fomentations to be applied to the affected parts. Three grains of calomel and 15 grains of Jalap powder directly and two table-spoonful of the following mixture every three hours:

R. Magnesiae sulphatis, $\bar{3}$ i.
Vini Antimonialis, 3 i.
Aquæ puræ, $\bar{3}$ vii.
Misce ft. mist.

27th January.—The medicine has acted well on the bowels; face much less swollen; tongue cleaner; pulse 76, soft.

28th.—Face more natural; tongue brown and dry; pulse 98, feeble; bowels confined.

To have an opening draught and a Cathartic enema.

29th.—Inflammatory symptoms subsiding rapidly; pulse 76, tongue cleaner.

30th.—Has had frequent vomiting, and passed a restless night; bowels have been opened by Castor oil.

31st.—Tongue dry and brown; pulse 70, feeble; no tenderness of the epigastrium; inflammation extending over the scalp; great thirst and clamminess of the mouth.

To have the following powders every three hours:

R. Calomelas, grs. 1.
Pulvis Opii, grs. $\frac{1}{2}$.
Camphoræ, grs. 2.

The head to be shaved.

1st February.—Slept but little during the night; tongue cleaner in the centre, but furred at the sides, moist; bowels open; pulse 68, feeble; redness and tenderness over the scalp, but no effusion; cuticle of the face desquamating.

R. Ext. Belladonnæ, grs. $\frac{1}{2}$.
Every 4 hours.

2nd.—Tongue brown and dry; pulse 90, weak; bowels open; redness of the scalp much the same.

3rd.—Redness of the scalp subsiding; tongue moister, and not so brown; pulse 80, soft. An ounce of Castor oil directly.

4th.—Nose much swollen, red, and painful; more redness of the cheeks; the inflammation is subsiding on the scalp; pulse 84, very feeble; bowels open; skin dry.

R. Ammoniae Carbonatis, grs. v.
Morphiae Hydrochloratis, grs. $\frac{1}{2}$.
Aquæ Camphoræ, $\bar{3}$ i.
h. s. s.

To have chicken broth.

6th.—Tongue dry and brown; skin dry; face not so tense, otherwise much the same; pulse 80; complains of weakness; voids urine in small quantities.

7th.—Much improved; inflammation subsiding, tongue cleaner and moister; bowels open: pulse 76, weak.

9th.—Inflammation appears subdued.

19th.—Since last report he made very fair progress, and at his own request undertook a journey to Chittoor for the benefit of his health.

MEDICAL WARRANT-GRADE TEST.

AN effort has recently been made to assimilate the tests for admission into the Warrant Grade of the Subordinate Medical Department in the three Presidencies. The standard of examination in Bengal and Bombay was pitched too low. In Madras it has been decidedly high. The Inspectors-General of the former two Presidencies acknowledged the necessity of raising their standards, but were unprepared to adopt that of Madras in its entirety. They have, therefore, agreed upon one very like the superior test in all respects but that of mathematics, which it excludes. This has received the sanction of the Governor-General for Bengal and Bombay, while Madras retains its own higher ordeal. The attempt to secure an uniform standard in all the Presidencies, has consequently proved unsuccessful. We cannot regret this failure. So long as candidates crowd for admission into the Apothecary grade of our Southern Presidency, and are found equal to its initiatory examination, it would be a mistake to reduce the requirements of that test. But as it is the desire of Government to encourage sons of British soldiers and others in the sister Presidencies to enter the Subordinate Medical Departments there, it would be equally a mistake to elevate the standard so much as to exclude them. That their exclusion would be the result of introducing the severer test of Madras, is distinctly asserted by Inspector-General J. C. Brown, C. B.

Inspector-General Balfour politely offered to recruit the ranks of Bengal and Bombay Apothecaries with Madras candidates, equal to the higher standard of this Presidency, but acceptance of this

offer would have been so great a hardship, and so unfair withal, to the classes which have hitherto supplied the Warrant Medical Departments of Bengal and Bombay, that we are not surprised at the rejection of the proposal. The new and medium test authorized by the Governor-General for the Northern Presidencies is quite high enough to secure men fully equal to the duties of Apothecaries all over India.

We observe that Inspector General Balfour holds the "opinion that it is of very great importance that those who devote themselves to the Medical profession should enter on the study of it at as early a period of life as possible, and for Madras with its abundant supply at hand," he "would substitute the words not below 14, nor above 17 years of age," for "not below 15 nor above 19 years." The high test is to our view a strong argument against any reduction of the present age-limits of candidates. And we hold that the age of *fifteen* is the very lowest at which a special professional direction should be given to the studies of any young men. Till then the attention of their parents should be directed to their physical education, and their own attention to the acquisition of knowledge in the subjects embraced by the standard examination;—and to lower the age at which they should pass the ordeal before them, would be to encourage a system of *forcing* and *cramming*, and so render them less able to master the professional studies of their subsequent education. It is now granted on all hands that such a system not only overburdens the minds of youth with information that is feebly held, and, therefore, retained by the memory but a short time, but it weakens their mental powers and makes them unequal to the thorough mastery of the professional subjects which must subsequently engage their attention.

PHYSICAL TRAINING AND EDUCATION.

THERE is no doubt that in these days we hear a great deal about *education*. It is a subject that engrosses the attention of the legislature, interests men of science, and most intimately concerns each one called to play his, or her, part in the business of life. We hear of education of the masses, education of children, education legal, medical, and commercial. Now, of recent days, we also hear of *physical education*. We do not mean to infer by this that physical education is a creation of these latter days—far otherwise—it would seem to have been practised by the nations of antiquity, and was certainly brought to a high pitch of perfection by the gladiators and athletes of Greece and Rome. What we do mean is this; that while physical education was formerly a special training for the runner, wrestler, boxer, rower, and so on; it is now beginning to be considered as an integral part of a boy's education without reference to any particular career in life; and is justly considered one of the best means of aiding in the bracing and strengthening, not alone of the muscles and sinews of the bodily frame, but also of the mental and moral powers. There is great truth in the old saying about the *mens sana in corpore sano*; and we are really led to believe that, with perhaps a few exceptions, it is useless to look for the one unaccompanied by the other. That in fact so wonderfully are we constituted, that the body and mind act and re-act on each other to a far greater extent than appears at first sight. It must, therefore, be a grand object so to train and strengthen the body, that it may be a willing instrument to fulfil the dictates of the mind—not a frail wearied clog on its best energies. We must remember the true meaning of the word *education*, which seems to us to be too often forgotten. Education is not a

cramming in, but a *drawing out*; and until this principle is really understood and complied with, all efforts at successful training will be vain. We must ascertain what capabilities, talents, and desires are existent, and then try to lead them out, to develop them and foster them to their full extent of beauty and usefulness. Physical education is then of the highest importance. All other things being equal, the man or woman blessed with bodily health and vigour will be more useful as well as more happy than one who, with equal mental endowments, is not strong and healthy.

Now, what is physical education? It must surely mean a gradual developing of the bodily powers and the employment of every possible means to raise the moral tone of the system concurrently with mere physical health. We think that parents cannot begin too early to attend to the physical education of their children. The little helpless infant can be influenced far more than we are wont to think, both physically and morally, by the treatment it receives from its mother and nurse; and a healthy condition of body and mind which will last for life, may be brought about by due attention and care bestowed in the first few years of existence. The little one should have an abundance of fresh pure air to breathe; it should be regularly bathed in water, tepid at first, but gradually reduced to cold, after the period of teething is past; it should be taught to enjoy its bath and not to be afraid of the slight shock produced by the cold water. After the bath the child should be rapidly and thoroughly dried, and its body and limbs carefully rubbed with the hand until a delightful glow is induced, pleasant to the child, and the best assurance that the bath has been productive of good to the system. Clothing is another point too frequently neglected, or misunderstood, by mothers. In

the vanity of their hearts they deck out their children in silks, and satins, muslins, laces, feathers and flowers, which seriously ruffle the little one's temper, add to the anxieties of its nurse, and after all fail of the true object of clothes, viz., to adequately protect the body from sudden damp or chill. To our mind only two classes of fabrics are admissible in the clothing of children, cottons and light woollens. Undue magnificence, or fussiness, in the clothing of children is a sad error. The child, dressed up like a milliner's model in tightly fitting clothes, dares not obey the instincts of its nature which would lead it to rush about in untiring, and not always very cleanly, play exercising, and developing its muscles, and ensuring it the sweet sound sleep which should be a characteristic of childhood. Nor is this the only way in which the child suffers. Its mother cannot see with composure expensive clothing (expensive sometimes beyond her means) soiled and torn; so there commences a string of orders, and a constant nagging, injurious to the child's temper and happiness, as well as destructive to the mother's comfort. The secret of clothing a child properly is to make its clothes thoroughly loose and comfortable, yet so contrived as to duly protect the body. To our mind a suitable style of dress, for both little boys and girls, is a loosely fitting body with trousers to button on; over this boys may very properly wear a loose tunic belted at the waist, and girls a dress made all in one, something similar to the boy's tunic, confined round the waist with a sash. This style would obviate the necessity for all the strings and bands which are so injurious to the rapidly growing frame, and could be varied in many simple and tasteful ways, giving scope to a mother's inventive genius and her natural desire to see her child look to advantage. To some it may appear totally beneath the dignity of a Medical Journal to

enter into the consideration of children's clothes with reference to physical training. It may be deemed, and with some show of reason the exclusive province of mothers and nurses; but when we reflect how seriously a child's growth and comfort depend on proper attention being paid to its clothes, we feel that we are not exceeding the bounds of our vocation when we call the attention of family physicians to the errors in children's costume that they must see in their daily visits from house to house. These gentlemen have much in their power, and mothers who will take no advice from other friends have usually some scruple in neglecting any suggestion of the "doctor's." We see some little girls, even in this hot country, dressed up in well fitting silk tunics over richly embroidered muslin skirts; the fit of the dress secured by something too nearly approaching corsets to be a proper article of child dress; and their skirts stuck out by a crinoline apt to catch here and there and throw the child down, and worse than all hanging from the waist unsupported by shoulder straps, a heavy weight on the daily expanding frame. This is not our ideal of a child's dress. There is a reverse to the picture: some children born of the most respectable parents are permitted, in consequence of some foolish ideas about the extreme heat, to walk all day without shoes and stockings, their delicate feet marked and cut by the rattan mats, and constantly liable to the bites of ants and minor vermin, not to mention the more dreaded sting of a vagrant scorpion. Nor are shoes and socks the only articles of dress reserved for an evening drive; the costume during the day consists of one garment having neither shape, nor beauty, and serving neither the purposes of protection nor decency. This practice too we utterly condemn. Let the child's clothing, at any rate in the plains of India, be cool and light as you will; but let it be so

shaped and fashioned as to be a real protection, and so suitable and cleanly as to early implant ideas of propriety and self-respect in the child's mind. Of course examples of these three different classes of children's clothing will occur to each; and we have personally known a gentleman of high-standing in Madras Society whose little daughters were never seen in any thing more luxurious than a thick white muslin, or an ordinary print dress, but who were never seen with any soil, or spot, to mar the modest simplicity of their attire. Another point to be attended to in the attire of growing girls is, that there should be no undue compression of the waist, nor weight hanging on the hips. We once knew a medical practitioner who invariably requested the mothers of his young patients not to permit their daughter's clothes to be in any instance fastened round the waist. He required that whatever they wore should hang from the shoulder; and that all extra petticoats, &c., should be buttoned to a sort of body made of stout material, and fitted by an experienced corset-maker to each girl individually. In fact, the only band of any kind round the waist was a merely ornamental sash put on over the young girl's upper dress. This was, we think, very sensible. We know that in some cases, in after life, slow and tedious labour is produced by the extreme flaccidity of the abdominal muscles, which have been injured and attenuated by the long continued pressure of corsets, and petticoat bands; and we also know that the women who conscientiously avoid tight lacing are the very ones who usually most perfectly regain their figures after delivery. The muscles having all their natural elasticity yield during pregnancy, co-operate with the uterus during labour, and afterwards resume their old volume and vigour to a great degree. It is vain, worse than vain, it is sinful for anxious mothers to persuade or permit their daughters to follow so

deleterious and unreasoning a fashion as tight lacing under the mistaken idea of improving their figures. It defeats its own object, as we have just explained. It tends to a general impairment of health, and sadly diminishes the grace and ease which naturally characterize a woman's movements.

Nor is clothing the only rock upon which ignorant, or foolishly indulgent, parents sometimes wreck their children's health and happiness. A most important consideration is food—the materials out of which the child's body is to be built and formed. To begin at the beginning of this evil, we must probably look back to a period before the infant's birth, and see in the expectant mother's own powers of self-control and discipline, what habits and appetites are likely to be transmitted to her offspring. We all know and admit that tastes, as they are called, are hereditary; and we believe that this is effected in two ways; first, by real descent, that is to say, the child has a natural predilection for the actual food, as well as for the intellectual pursuits indulged in by its mother prior to its birth; secondly, children learn rapidly by example, and a whimsical fanciful mother is well nigh sure to be surrounded by dainty, fastidious children. Oh if young mothers could only realize the responsibilities resting on them! If they could only see that their infants are not mere lay figures on which to exhibit robes to gratify their own vanity, nor toys to be petted as a child pets its doll, but immortal souls to be trained to usefulness on earth and happiness in heaven, what a change would be wrought in our houses and in our social life! To return, a mother's tastes and habits have an immense influence on her unborn babe. A craving for deleterious substances indulged in by a thoughtless woman during pregnancy has been known to cost her child's life; and a taste for strong liquors then developed has too often been communicated to

the innocent babe. It is here too, we think, that we must look for the solution of a problem that has often puzzled us. How is it that our children here in India evince, in general, such aversion to the diet most suitable for them, and best relished by children of their own age at home. Why do our little ones born in India, as a rule, refuse nourishing bread and milk, simple puddings, wholesome congees, gruels, and broths, while they readily eat rich made dishes, hot curries, and solid meat, adapted only for the digestion of adults? We think it is owing to the artificial life their mothers lead. Artificial, not only as to constant visiting, late hours, and too great indolence on plea of the climate, but artificial *feeding*. Families of the middle class in England eat a wholesome breakfast of bread and butter with eggs, bacon, or mutton chops. They have a substantial meal in the middle of the day, a simple early tea, in which bread and butter again plays a conspicuous part, and after an early dinner or supper retire to bed with some approach to regularity in hours. The same families come out to India and falling in with the customs of the place eat little or nothing till about 10 A. M., at which hour there is a breakfast consisting of more dishes than would suffice for dinner at home. Tiffin, in some households, is another meal accompanied by meat; and a late dinner, with its soups, fish, entrées, relèves, puddings, and other indigestible things, forms a bad preparation for a good night's rest. It is not so much the hours of the meals that we consider objectionable as the large proportion of animal food that fashion dictates we should eat. Some amount of animal food is, no doubt, necessary to the European constitution; but in this climate, rice, the natural staple of the country, vegetables, fruit, and bread should form the bulk of the food. We should have stronger children if we led simpler lives. All the circumstances enumerated

above are bad for the health of the expectant mother, and equally bad for the constitution of her child. These evil influences do not cease on the child's birth: the indolence above alluded to and the extreme facility with which a wet nurse can be obtained, result too often in healthy women, perfectly well able to nurse their children, depriving their poor infants of the food provided for them by nature, and denying themselves a most delightful, and health-giving duty.

Putting aside all further comment on this part of the subject for the present, let us pass on to the time when the child has cut its teeth, is weaned, and has in fact passed from infancy to childhood. Again we find an undesirable state of things. Few households in India have a genuine *bona fide* nursery, nor, in fact, any servant fit to take the management of one. A really steady, conscientious European nurse is a very scarce article, and the best of native ayahs cannot adequately fill her place. The children then are either wandering about the house, learning much that is undesirable from the native servants, or they are constantly in the company of their mother. Of course when there is no nursery, the children must come to the table, and, for breakfast and tiffin at least, share their parent's meals. Thus, they too learn to eat all sorts of food, and frequently fall into a habit of ordering what they like from the servants, just as they hear older people do. They acquire a taste, or rather develop the predilection induced in them before birth, for rich, hot and indigestible food. Fond parents wonder at the lassitude and delicacy of their children, and sigh over their enforced exile, while the evil really springs more from their own ignorance and over-indulgence of themselves and their children, than from the much abused climate. The food must be, as we said of the clothing, simple,

light, and adequate. We can no more approve of soups, made dishes, and very hot curries to disorder the stomachs of children, than we can approve of silks, laces, and feathers, admirably contrived to prevent them obtaining exercise or in any way gratifying their natural and proper desire for hearty and wholesome play.

Rest is the next essential to a child's physical training, and without it our best efforts to develop its frame will be nugatory. Little ones need a great proportion of "Nature's sweet restorer, balmy sleep." It is just the time when all the functions of nature are going on with most vigour, when each day should bring advancing organization of the brain in particular, when the perceptive faculties are peculiarly on the alert, and when the least error will be attended with ill results. How rapid is the development of the brain in children we see from the following passage taken from Dr. West's lectures on the "Diseases of Infancy and Childhood." "There is no organ in the body with the exception of the pregnant womb which undergoes such rapid development as the brain in early childhood. It doubles its weight during the first two years of life, and reaches nearly, if not quite, its maximum by the end of the seventh year. This same active state of the nutritive, or vegetative processes in the brain of the child renders the organ liable to have disease set up in it by causes which would produce little or no injurious effect on the brain of the adult." Surely then it is imprudent and wrong in the extreme, to urge children beyond their powers. Nothing demands greater care and consideration than the commencement of a child's education. We must not attempt to develop the mind at the expense of the body. If we do, it must be at the expense of real efficiency of both body and mind hereafter. Let us take one more

passage from the pages of the well-known author we have just quoted. After speaking of juvenile hypochondriasis and malingering, Dr. West adds "Another form of mental disorder in childhood sometimes presents itself to us as the result of over-tasking the intellectual powers. This over-work, too, is by no means in all cases due to the parents' unwisely urging the child forward, but is often quite voluntary on its part. Sometimes, too, the friends of the child are so alive to this risk, that they limit the hours of work; a precaution which nevertheless often proves inadequate, from the want of some due provision for turning the thoughts and energies during play-hours into some perfectly different channel. In many of these cases nature happily takes matters into her own management. For a year or two, or more, the mind has grown apparently at the expense of the body; the parents take a fearful joy in their darling's acquirements; and if it should but live, think they, of what remarkable talents will it not be the possessor? By degrees the extreme quickness of intellect becomes less remarkable; but the body begins to increase in robustness; and a year will sometimes suffice to transmute the little fairy, so quick, so clever, but so fragile, into a very commonplace, merry, rosy, romping child. I may add, that it is well to bear in mind the converse of this; to remember that body and mind rarely grow in equal proportion at one time; that the incorrigible little dunce though not likely to prove a genius as he grows older, will yet very likely be found at twelve or fourteen to know as much as his playmates. A dull mind and a sickly or ill-developed frame may make us anxious; but if the physical development is good, the mind will not be likely to remain long below the average standard. But sometimes the over-tasking mind leads to mischief which nature

cannot rectify; an attack of cerebral inflammation comes on; often partakes of a tuberculous character, and destroys the patient; or if not, the child sinks under almost any accidental disease. In other instances, however, neither of these results takes place, but the whole nervous system seems profoundly stricken and the moral character of the child seriously and even permanently injured." Surely, testimony like this, from so able and experienced a physician, should show mothers the folly of commencing too early, or pursuing too ardently, their children's book education. We say *book education*, for it is not to be forgotten that children can learn much without having their brains unduly exercised, and even without a book being opened. The active inquisitive mind of childhood is perpetually leading children to ask all sorts of questions upon every object presented to their senses, from the constitution of the sun to the *raison d'être* of the minute seeds in strawberry jam; and a parent who will listen to, and answer, his children's questions intelligently and truly, neither impatiently and hurriedly, nor mockingly and untruly, will teach them in this easy and innocuous manner more than they could learn from any book suited to their comprehension. In fact, the mental good thus afforded to little children bears an analogy to the first physical food designed for infants. In both instances, the crude elements are digested by a stronger organ than the child possesses, and the product is the very aliment calculated to nourish and sustain the child's life—in the one instance physical, in the other intellectual. To explain our meaning: in the case of the infant depending on its mother for sustenance, she eats a variety of substances, each one unsuited in itself to the tender digestive organs of the infant, but transmuted by the alchemy of nature into the model food for the nutrition of the frail and helpless infant. In the

same way the studies and pursuits which have furnished a parent's mind with a fund of general information are utterly unsuited to, and totally beyond the grasp of, the child's feeble comprehension; but the information sought by the child, and afforded by the mother, in simple child-like words, is the best means of forming and nourishing her child's mind even as her milk has nourished and formed its body. A child then must not be urged, nor ever permitted to engage in studies unsuited to his age or strength. Indeed, we think that, as a general rule, a child should not be taught even his letters till he is five years old, and no attempt should be made to enforce regular hours of study until he has closed his seventh year. Let his physical constitution become strong, and let him quite outgrow all delicacy resulting from difficult dentition, or an ailing childhood, before the additional burden of mental work is laid on him. The best form of instruction for really little children whose own restlessness, or whose mother's want of time causes them to be sent early to school, is to be found in the *Kinder garten* system. There the child's mind is taxed as little as possible, its attention is well sustained, and its body constantly exercised. Object lessons form a prominent feature in this system, and anything committed by the children to memory is usually accompanied by rhythmical movements of the limbs, sometimes made still more attractive by singing. Many little industrial arts are taught, such as greatly amuse and instruct the children, giving them pleasant resources for leisure hours, and safety valves for their superabundant energy which would else find a less desirable outlet in tiresome and destructive mischief. A child's hours of rest should be sufficient and regular; here in India, at least, they should pretty well take the sun as their example, at any rate they

should retire before the evening gun, and rise as soon as possible after the morning gun. This would give them between eight and nine hours' sleep each night, a quantity which might well be supplemented by an hour or more between twelve and two in the day. Early rising is good for all, adults and children everywhere; but how much more necessary is it here when the only time for exercise is an hour or so in the cool of the morning, and an equally limited time in the evening. Parents should not mistake the meaning of the word *exercise*. This grand element in physical training is not to be attained by sending out the children in a closed carriage, under care of their ayahs, who may probably conduct their little charges to the fragrant neighbourhood of Chintadrepettah, or the elysium fields of Black Town. The exercise we mean is to be found on the fine sandy beach, which seems designed to be the playground of our little Madrassesees. There, racing, jumping, digging and tumbling will develop every muscle, strengthen every nerve, and prove the best safeguard against that languid, nerveless depression which characterizes children in this enervating climate.

Here, however, we must stop for the present, though we feel that, on the subject of Physical Training and Education, our remarks have been only too crude and fragmentary. Physical Education also, it must be remembered, is not confined to children alone; but embraces within its scope the young girl as well as the growing boy, the young lady as well as the incipient gentleman. Our remarks, in this paper, are merely introductory; and it is our hope that we shall be able to pursue our observations in some more definite form at a future time; but should we even then fail to do justice to our subject, we shall feel ourselves amply compensated if we succeed in awakening the attention of those best fitted to instruct the public on the important subject of Physical Education.

191.

MEDICAL MISCELLANY.

Cohnstein on Determination of the Life or Death of the Fetus.

Dr. Cohnstein (in *Arch. fur Gynak.*, vol. iv. 3rd part, 1872) states that the information whether the fetus is living or dead during pregnancy, but especially during parturition, is often of the greatest importance; and where hearing the fetal heart and feeling the fetal movements fail or are uncertain, ascertaining the temperature *in utero* will often very materially assist if not decide us in determining the question. It is a fact that the temperature of the fetus *in utero* is higher than the maternal temperature; and experience proves that the careful introduction of the thermometer into the uterine cavity between the membranes and the wall of the uterus is unattended by harm. We have thus a ready mode of settling the question when it is otherwise doubtful.—*The Medical Record*.

McIntosh on Dysmenorrhœa and its Treatment with Sulphate of Quinia and Extract of Stramonium seeds.

THE results of an experience with each of these drugs, used separately, led Dr. McIntosh (*American Quarterly Journal of Medical Science*, Jan. 1873) to unite them in the following proportions, varied according to the requirements of each individual case. 'Give a pill consisting of $\frac{1}{4}$ to $\frac{1}{2}$ gr. ext. daturæ stramon. sem.; $\frac{1}{2}$ to 3 grs. sulph. quiniæ; $\frac{1}{4}$ to $\frac{1}{2}$ gr. opii; 1 to 2 grs. camphor, three times a day for five days; beginning three days before the catamenial discharge, and continuing for two days after its inception. The same treatment is to be commenced just previously to the next monthly period, and usually from four to eight repetitions, where there is no mechanical obstruction, will secure a regular, painless monthly flow.' Latterly Dr. McIntosh has added powdered ipecacuanha to the above pill, and, as he states, 'with benefit.' 'With the foregoing treatment should always be combined such emmenagogue and ferruginous medicines as an anæmic or other condition may require, while special directions should be given to procure a daily action of

the bowels. A careful avoidance must be observed of exposure to cold or wet, and great care in keeping the feet warm, and a good circulation in the lower extremities generally.—*The Medical Record*.

Propylamine.

THE alkaloid propylamine, which is now obtaining some celebrity in this country as a cure for rheumatism, is a body with which chemists have been some time familiar.

Propylamine is identical with the body secalin, the volatile alkaloid discovered by Winckler, in ergot of rye. The same alkaloid has also been obtained as an artificial product from narcotina, codeia, cod liver oil, and other substances, and it has also been found in certain species of chenopodium. The most productive source of propylamine appears to be herring brine or pickle, and it is separated from the brine by distillation with potash. The product contains much ammonia, and when neutralized with hydrochloric acid, the mixed chlorides of ammonium and propylamine are obtained; this last can be separated from the first by means of absolute alcohol, in which it is soluble.

The chemical formula of propylamine is C_3H_7HN (Attfield), and it appears as a colourless volatile body possessing an intensely strong odour of herrings. It mixes readily with water, and with hydrochloric acid forms white fumes of chloride.

Dr. Avenarius, of St. Petersburg, first called attention to the use of propylamine in rheumatism, and between March, 1854, and June, 1856, this physician treated 250 cases of rheumatism with great success. Some of the cases were acute, some chronic, and many complicated.

A solution of twenty-four drops of propylamine in six ounces of mint water, with syrup added, may be given in doses of half a fluid ounce every two hours, with every prospect of benefit to the patient.

Messrs. Rew and Co., of 282 Regent Street, to whom we are indebted for a very characteristic specimen of propylamine, inform us that 30 to 60 drops of carbolized ether added to each dose of propylamine, very completely destroys the very unpleasant fishy smell and taste, so very objectionable in the pure uncombined alkaloid.—*The Doctor*.

Vaginismus.

DR. STOLTZ (*Gaz. M. de Strasbourg*) says that he accepts the division of Huguier, who recognized an *essential* and *symptomatic* spasm in cases of vaginismus; that is, that he believes in the

possibility of spasm without fissure or alteration, and a spasm following upon diverse organic disorders. In the first category are to be placed hyperæsthesia and spasm from remains of the hymen; in the second are spasm and hyperæsthesia caused by organic affections, which are denoted generally by the existence of fissure. If there exist a difference between contraction (with or without fissure) of the anus and that of the vaginal orifice, this difference arises solely from the fact that in the virgin state the vaginal orifice is provided with a valvule, which is broken. As soon as this is ruptured the orifice of the vagina, as Boulli has well remarked, is in the same anatomical condition as the orifice of the anus; so that it is not surprising that it may have analogous infirmities.

Spasmodic contraction from hyperæsthesia is the most simple form, and renders sexual relations incomplete or impossible. This hyperæsthesia, which Stoltz has met with only in women not long married, has its principal seat at the orifice of the vagina; Sims thinks that the hymen is always at the commencement in fault, but the simple division of the membrane does not always put a stop to it. It is necessary to make a deep incision as far as the constrictor vagina muscle. We have then to do with spasm of the constrictor muscle, following doubtless on hyperæsthesia, but which is the cause of the persistence of the obstacle. As to the treatment, the chief indication in such cases is to cause the mechanical obstacle to connection to disappear. If the hymen be intact we must divide it in various directions as far as its base; if torn, but there remains obstruction from the ring, this should be incised in different points. If the obstacle be the spasm of the constrictor muscle, we should employ—1. Local antispasmodics; 2. The division of the muscle by the knife; 3. Gradual dilatation by means of dilating instruments, such as specula of various diameters; 4. Sudden dilatation by the fingers or dilating instruments, to be performed during anæsthesia.

Spasmodic contraction from irritation of fissure is observed among women who have been married for years, and even in women who have had children, but the latter case is very rare. The mechanism of its formation is as follows:—If any slight wound be produced by any cause, such, for instance, as the incomplete rupture of the hymen, it may degenerate into fissure, and this latter provokes the spasm. If we examine the genitalia, we find the vaginal orifice more constricted, and its mucous membrane greatly wrinkled and of a dusky colour. When this is made smooth, we find between the shreds of the hymen, or deeper down between the folds of the mucous membrane, a stain of wine-red colour with a small wound in the centre. The introduction of the finger is painful, that of the speculum is insupportable, sometimes impossible. The author then reports two

cases of this form of the affection. As to therapeutics, he first of all recommends complete cessation of sexual relations; then if there be fissure or wound, the canterization with nitrate of silver frequently repeated, with calnitive or astringent ointments; and in certain cases we must here, as in fissure of the rectum, have recourse to incision.

Stoltz thus sums up:—"There are two kinds of vaginal spasm, one met with in virgins or persons not entirely without hymen, and to which Marion Sims has applied the denomination of vaginismus; and a vaginal spasm with or without fissure, arising at any epoch of female life, and having a great analogy with anal fissure. Both may have the same consequences; firstly sterility, and next functional alterations, which are especially expressed by nervous affections and errors of nutrition."—*The Doctor*.

Peculiarities in the Operations of the Three Great

[Ovariologists. By S. FITCH, M. D., EDIN.]

HAVING recently had opportunity of observing and assisting at the operations of the three great ovariologists, Wells of London, Atlee of Philadelphia, and Thomas Keith of Edinburgh, I will sketch some characteristics of their several methods.

They all employ anæsthetics: Atlee uses a mixture of ether and chloroform, two measures of the former to one of the latter. Wells prefers bichloride of methylene. Keith uses only sulphuric ether.

Atlee and Wells administer the anæsthetic after the patient is upon the operating-table. Keith's patient is etherized on her bed, in an adjoining room, and then carried into the operating-room.

Atlee places the patient on a narrow table, obliquely facing the window, the left side towards the window, so that the light falls upon the left and lower part of the abdomen; the hips rest on the edge of the table, the feet placed upon a suitable support beyond it, commonly a chair without a back, and the head and shoulders raised by pillows. He stands at the patient's right, with the principal instruments on the *window-ledge*, his chief assistant on the opposite side of the patient, with ligatures, sutures, and reserve instruments at hand.

Wells and Keith have the patient's full length upon the table, the thighs strapped to the top of the table by a broad girth, and loops passed around the wrists and fastened to this girth to insure immobility: the patient is then covered by a thin india-rubber sheet, with a hole in the centre to admit the abdominal protuberance, and the edge of this aperture, being coated with adhesive plaster, sticks to the skin and excludes all liquids from the patient's clothing. (They all cover the patient warmly,

excepting the parts under operation, with blankets. Keith keeps a vessel of hot water near the feet.)

Wells has the patient's right side towards the light, on a table diagonally across the window, the head being withdrawn to a convenient distance from the window, so that as he stands on the patient's right side, the light falls obliquely past his right upon the parts under operation, the assistant and instruments being opposite him on the patient's left.

Keith has the table in front of, and parallel to, the window, the patient's left side next the window, while he stands on her right facing the light, the instruments on his left, and the assistant on the opposite side of the patient, but nearer her head, so as not to obstruct the light.

Wells and Keith have always only one assistant besides the one who administers the anæsthetic. Atlee generally has several.

All these operators make the incision at first only two or three inches long in the linea alba, midway between the umbilicus and pubes down to the sac, then pass in a finger to examine the surface of the tumor and separate parietal adhesions. (Atlee here earnestly enjoins care, in case of intimate anterior parietal adhesions, that the finger be inside the peritoneum, and not between the layers of the abdominal parietes, and gives this convenient and infallible test, that "if the finger can be freely moved to and fro past the umbilicus it must be within the abdomen.")

They then tap the cyst or cysts, and draw out the remainder of the tumor through the small incision when practicable; but if adhesions or the amount of solid constituents prevent this, then the incision is extended, and chiefly upwards, so as not to endanger the inferior or vesical reflexion of the peritoneum.

Wells employs his well-known tubular trocar, with an attachment for seizing the sac. Keith's trocar is similar to Wells's, but longer and without the grapple. After puncturing, he catches the sac with long-handled, mouse-toothed forceps, which are then held in the hand with the trocar to prevent the sac slipping off.

Atlee uses the common trocar and canula of large size, and as soon as the sac is sufficiently emptied to admit of being caught, he holds it upon the canula with his fingers and thumb, as being less liable than instruments to tear the sac.

Sometimes the hand is inserted through an incision in the sac, to break down loculi and evacuate dense or gelatinous contents which will not flow out through the trocar.

As soon as the pedicle can be commanded, it is secured. Wells and Keith apply the clamp immediately. Atlee, when the long incision is required and adhesions are intricate, frequently first ties the pedicle, and, severing it close to the tumor, drops it back, with a long ligature attached, into the abdomen, so as to be

unencumbered with the clamp until all remaining adhesions are separated and hemorrhage controlled.

Adhesions are torn or broken rather than cut (and this process is sometimes facilitated by having one hand within the sac, especially where the sac is fragile).

In case of inseparable visceral adhesions, the adherent portion of cyst is cut out, and afterwards the inner or secreting layer is peeled off, leaving the peritoneal surface attached.

Where vessels require tying, Keith uses fine carbolized catgut, and cuts off both ends, and thinks these ligatures are always absorbed. Wells does the same with fine, unwaxed, pure silk, and considers it equally liable to absorption. Atlee ties with waxed silk, and leaves one end of the ligature long, bringing it out with the pedicle, or if high in the abdomen at a point in the incision opposite the place of ligation; but he frequently controls parietal vessels and bleeding points by acupressure, using French toilet-pins, or long sewing-needles with sealing-wax heads, passing them in through the abdominal walls and out again in such a way as to compress the vessel between the needle and the abdominal parietes, and generally passes a figure-of-8 thread over the needle on the outside. If the omentum bleeds from numerous vessels and is much stripped up, he ties it *en masse*, or if bulky, he ties it in several fasciculi and cuts off the distal end of each close to the ligature; he afterwards brings out each portion and passes a pin through the lips of the incision, avoiding the peritoneum, and through the stump, then crosses a thread over it around the needle, as in hare-lip suture.

Finally, the adhesions separated, the tumor removed, hemorrhage controlled, and the cavity of the abdomen cleansed with soft sponges, the clamp is applied, if this has not been previously done, and the pedicle placed without twisting in that part of the incision where it will lie most easily, generally in the lower angle, and the incision closed by deep sutures which include the peritoneum three-quarters of an inch apart and three-eighths of an inch from the edge, and superficial sutures one-eighth of an inch from the edge wherever they are required to correct eversion or inversion.

Wells and Keith use long unwaxed silk sutures, each end armed with a triangular-pointed, straight needle, which they insert on the peritoneal surface one-quarter of an inch from the edge and push out through the skin three-eighths of an inch from the edge. As the sutures are brought through, the needles are pulled off and the ends of the sutures held by the assistant. A long flat sponge is kept over the intestines beneath the incision till all the sutures are introduced, when it is withdrawn and the sutures tied, commencing with the lowest one.

Dr. Keith, in tying, lets the assistant catch the first twist of the knot with the points of long dressing-forceps, and hold it

till he ties the second portion. Atlee uses fine iron wire sutures, which he introduces very rapidly through both edges at once with a peculiar tabular needle. The sutures are drawn only moderately tight, so that subsequent tumescence may not cause strangulation of the parts included. The end of the pedicle is then swabbed with solution of perchloride of iron (Atlee and Keith), or rubbed over with crystals of the same (Wells).

All three operators use the clamp almost exclusively for securing the pedicle. Wells and Keith use a heavy lever clamp, which is closed by long, powerful handles; the closure is then fixed by a strong screw, and the handles detached. Wells has discarded his circular clamp on account of its liability to cut the pedicle. Dr. Keith occasionally ties the pedicle with strong carbolized catgut, and drops it in. His brother, Dr. George Keith, was the first to advocate bringing the pedicle out through Douglas's *cul de sac*, which Handyside afterwards practised in 1845-46.

Atlee uses his beautiful light clamp, described in the *American Journal of the Medical Sciences* for April, 1871. He has given up the *écraseur* (which he was the first to use) for dividing the pedicle.

They all object to "dropping in" the pedicle, on account of the liability of the raw stump to adhere to some portion of the intestinal canal, causing acute curvature and obstruction of its calibre.

Keith and Wells place around the pedicle, beneath the clamp, soft muslin bags loosely filled with carbolized chalk and camphor, and the same over the end of the stump, and a strip of carbolized muslin over the incision; then apply five or six adhesive straps, three inches broad, overlapping each other from ilium to ilium, thus covering in and supporting the whole hypogastrium from the pubes to a little below the umbilicus, then cotton batting over the whole abdomen to fill up all inequalities, and a broad flannel bandage over all completes the operation, and the patient is carried to her bed.

In examining or dressing the pedicle the adhesive straps covering the clamp are not disturbed at their terminal attachments, but cut through at their middle and afterwards replaced.

The after-treatment is essentially *expectant* in the best sense of the term, not passively, but carefully, jealously, unremittingly expectant or *vigilant*. If no symptoms threaten, nothing is done to invite them.

The service of the nurse is to be quiet, cheerful, prompt, unobtrusive, her main object being to keep the patient comfortable, restful, and happy.

The catheter is used gently, so as to avoid impinging and irritating the lining of the bladder, and as often as required. Pain controlled by anodynes, by the mouth or by suppository, or by subcutaneous injection. When there is thirst or nausea or

vomiting after the operation, Dr. Keith gives frequent sips of hot water, and Mr. Wells oftentimes finds the ice-bag to the epigastrium grateful and serviceable.

Flatus is relieved by the rectal tube, and sometimes by puncture with a fine trocar. If there is evidence of noxious intraperitoneal effusion, with fulness and fluctuation in the post-uterine vaginal *cul de sac*, the part is punctured.

Pregnancy is not considered an insuperable bar to the operation. I saw a patient of Dr. Keith's in perfect health, who had recently given birth to a healthy child at the full time after ovariectomy during gestation, and I saw two patients of Mr. Wells's, one of whom had just got up from a healthy parturition after ovariectomy six months previously, and another perfectly well in the ninth month of pregnancy after an ovariectomy six months before, or in her third month.

Speaking of results, Mr. Wells told me of a patient from whom he had removed *both* ovaries, who informed him that in her conjugal relationship "before the operation she had been only passive, but since the operation was always aggressive."

Mr. Wells's ovariectomies last June numbered five hundred, with one hundred and twenty-eight deaths. From March, 1870, to April, 1871, he had a succession of thirty-two cases in private practice, *without one death*.

Dr. Atlee has done about three hundred, and has now published an admirable work on the diagnosis and treatment of pelvic and abdominal tumors. It is a summary of his whole ovarian experience and practice, recording with curious fidelity failures as well as successes, and presenting a regular gradation of cases demonstrating the varied phenomena of ovarian diseases, and comprising full formulæ for their detection and discrimination; and these formulæ are so simple and so lucidly illustrated, that the merest novice may apply them with almost mechanical accuracy for determining the existence and character of intra-pelvic and abdominal enlargements. Many of the observations, especially those upon fibro-cystic disease and degeneration, and upon the nature and treatment of peritoneal cysts, are absolute discoveries, or at least entirely in advance of anything hitherto known on these subjects.

Dr. Keith is the youngest of the three; the number of his operations last July was one hundred and forty-six, with twenty-six deaths, his success being very remarkable.

Medicine.

Trastour on Congestive Hæmoptysis.—M. Trastour endeavours, in two communications of great length (*Journal de Médecine de*

l'Ouest, 1872), to show that hæmoptysis occurs quite independently of the existence of pulmonary phthisis, much more frequently than is generally supposed. He describes several cases of hæmoptysis in which he regards the hæmorrhage as the result of some functional disturbance of the cardio-pulmonary circulation, and as occurring without any organic lesion of either the heart or lungs. Such forms of hæmoptysis he terms *hémoptyses congestives*. These congestive hæmoptyses are stated to owe their origin to various causes, and are classified under the following heads: 1. Those which are accidental, and result from some violent effort, or from contusions of the thorax; 2. Those which appear to be of nervous origin; 3. Those which result from some hyperæmic or inflammatory condition of the lungs or bronchi; a condition, however, which is only temporary and may produce no permanent organic lesion.

Under the first head the author relates two cases—one in which very profuse hæmoptysis followed a sea-bath; another in which a similar result was caused by a blow on the thorax. Both terminated in complete recovery. In describing those cases in which the hæmoptysis is said to be of nervous origin, he states that an habitual tendency to hæmorrhages from various organs is not unfrequently met with in those who are subject to functional disorders of the nervous system, such hæmorrhages appearing to be beneficial and even necessary to the health of the individual; and hæmoptysis of nervous origin he regards as occupying the same pathological position as menorrhagia, epistaxis, hæmatemesis, &c. Such hæmoptyses are consequently more frequent in women than in men.

Under the third head, M. Trastour proceeds in the first place to criticise the doctrine of Niemeyer respecting the pneumonic nature of phthisis. He dissents from the views of this pathologist, and accepts the teaching of Lacunée that the disease is almost invariably due to the development of tubercles; although he admits that in quite *exceptional* cases it may have a catarrhal origin. He gives an account of three cases in which hæmoptysis occurred frequently during several years, with physical signs of pulmonary lesion, but which terminated in complete restoration to health. These cases he regards as being congestive or inflammatory, but not as tuberculous in their nature; and he states his belief that such inflammatory conditions of the lung, leading often to more or less consolidation and induration, may occur quite independently of tuberculous disease (phthisis) and frequently terminate in complete recovery.

In the last cases narrated, successive attacks of hæmoptysis were followed by disorganization of the lungs and death; and the author admits that, in very exceptional cases, the extravasation of blood into the pulmonary tissue may be a cause of phthisis. His acceptance, however, of the doctrine of *phthisis ab hæmoptoe*

is much more restricted than is that of the late Dr. Niemeyer and of some other observers.

The paper concludes with certain data for the diagnosis, prognosis, and treatment of hæmoptysis.

Diagnosis.—In determining the nature of an attack of hæmoptysis in a young person free from cardiac disease, the following considerations should be taken into account: the previous health and aspect of the patient, the general symptoms, the existence or absence of dyspnoea, cough, and expectoration before the hæmoptysis, the temperature, the evidence of laryngeal complication, night-sweats, diarrhoea, &c. The existence of pyrexia is always grave, but, if only slight and temporary, it does not necessitate the conclusion that the hæmoptysis is tuberculous. The circumstances under which congestive hæmoptysis occurs must also be kept in view—e. g., violent efforts, contusions of the thorax, emotional states, a tendency to functional disturbances of the nervous system, or to hæmorrhages, hysteria, pregnancy, lactation, the suppression of habitual hæmorrhages, and the existence of chronic congestion of the respiratory organs.

Prognosis.—If the hæmoptysis be of non-tuberculous origin, it must be borne in mind that it may, in exceptional cases, lead to considerable disorganization of the lungs, to obliteration of the bronchi, collapse, and breaking down of the clot, or to a tuberculous disease of the lungs consequent upon the general debility of the patient.

Treatment.—In the treatment of hæmoptysis, the author advises the usual remedies; but in that of non-tuberculous origin the advisability of local or general bleeding should be carefully considered.

Gerhardt on the Treatment of Pulmonary Emphysema by Mechanical Assistance of Expiration.—Dr. Gerhardt says (*Berliner Klinische Wochenschrift*, Jan. 20, 1873) that in the treatment of emphysema, neither the inhalation of oxygen nor of ozonized air are of so much value as compressed air. It would scarcely be possible to confer greater benefit on emphysematous patients than by sending them to a more dense atmosphere a short time before the beginning of winter, and causing them to remain in it for some months; this, however, cannot always be done, especially among the poor. Good results may be expected from treatment which tends to overcome the retention of the chest-walls in the inspiratory position; and measures for promoting expiration are thus of importance in the rational treatment of emphysema. This fact has for some time been recognized, and Hauke of Berlin, and Berkart of London, have used apparatus to fulfil this purpose, which, though complicated, have been attended with very favourable results. By Berkart's apparatus, air is pumped out at each expiration. Gerhardt employs with the same object a simple plan, long in use among emphysematous patients—

manual compression of the chest and abdomen. The remedy, he says, is not new, having been already mentioned by Biermer, and in treatises on medicinal gymnastics. The result is favourable in proportion to the amount of flexibility of the costal cartilages, and appears to be especially so where portions of the air-passages have been obstructed by secretions, which cannot be expelled on account of the deficient muscular power.

Dr. Gerhardt gives notes of two cases in which he employed pressure. In both, the proceeding was followed by slight hæmoptysis, which he explains by supposing that the increased blood-pressure produced by the operation led to the rupture of some small vessels. In one of the cases, slight twitchings at the corner of the mouth appeared; in consequence, Gerhardt supposes, of a temporary increase of carbonic acid in the blood. The patients, whose cases are described, were both males, one aged forty and the other forty-two. The effect of compression during respiration, applied several times a day for some time, was to increase the vital capacity of the chest, in one case from 1,100 to 2,750, and in the other from 1,400 to 3,700 cubic centimetres, to diminish the amount of expectoration, and altogether to improve the condition of the patients.

Béconet and Giraud on Cysticercus in the Brain.—The authors (*Bulletin de la Société Médicale de Gand*, Dec. 1872), after remarking upon the rarity of the lesion, and giving a brief résumé of the opinions of Aran (*Archives de Médecine*, 1841), Davaine, and others, supply interesting details of a case coming under their own observation.

The patient, a soldier aged twenty-eight, had been originally under the care of Dr. Barth, at Boulay, who reported him as 'tending to anxious and religious melancholy (*lypémanie*), with ideas of suicide. He had even sought to put his ideas into execution by hanging himself against the wall of his room; but some person arrived in time to unloose him and restore him to life.' He afterwards entered the military hospital at Metz, where he came under the care of Dr. Hermann, who stated that he 'entered to be treated for an affection of the nervous centres, and that his symptoms tended to *lypémanie*, characterized by a state of rambling (*divagation*), accompanied by habitual sadness and tears. All the other functions were normal. Various medicines were employed without any favourable result.' The authors then state that the patient came to them in April, 1868, when his condition was described (by Dr. Bonnet, who examined him) as follows: 'All the moral and intellectual faculties were impaired, and nothing seemed to come to his perception. He was like an inert mass, to which all sensation of ambient things was entirely foreign.'

The authors then observe that this state of stupidity was in

harmony with what followed; but the patient cried and moaned piteously. It was, they remark, necessary to rouse him to make him take a little nourishment. Dressed (by others) in the morning, he sought some out-of-the-way corner, and groaned all day. From time to time he uttered some words in German. When questioned, he only replied with groans. The patient could, however, it seems, occasionally execute some very simple orders; so that there remained some slight vestige of reason. He neither had epileptiform seizures nor paralysis, and his physical health was very good. For a long time he remained in this state, but eventually becoming pale and weak, he was kept in bed, and was carefully re-examined on Dec. 29, 1871. He was very pale, there was considerable œdema of the right leg and of the thigh up to the middle part. An extensive ecchymosis extended from the centre of the thigh to the small and inner part of the limb, and the skin felt cold, giving the sensation of a corpse. Drs. Becoulet and Giraud prescribed canella wine, a purgative clyster, and the local application of compresses saturated with hot infusions of camomile; but the patient died on December 30. The necropsy, made two days subsequently, appears to have been very carefully conducted. The principal facts were those observed in connection with the brain. On the external surface of this organ were found scattered about fifteen cysts, of the size of a nut, and containing a transparent liquid. They lay on the left anterior frontal lobe, on the convolutions which border the great cerebral cleft, on the right hemisphere, and in the neighbourhood of the fissure of Sylvius. Their presence had determined the following conditions in the brain and meninges. Most frequently, the cyst was situated between two convolutions, which it depressed, and in the substance of which it was partly lodged. On stripping the brain of its envelope, the cyst was removed from the cavity where it was in part contained, leaving at that spot a depression corresponding to the form of the tumour, and hollowed out to the depth of the grey substance, which was completely atrophied down to that level. Some transparent serous fluid was found in the left lateral ventricle and floating in it was a small cyst altogether free of any attachment. It was of the size of a small nut, transparent and ovoid. In its interior was a white spot at the centre, corresponding to a depression of its envelope. The authors also found by microscopic examination, that the cysticerci severally exhibited the characteristic crown of hooks and cephalic suckers.

The authors conclude their paper with remarks on the symptomatology of brain-disease in relation to cysticerci. They criticise the writings of Griesinger, quoting especially the statements of Jaccoud, Hallopeau, Charcot, Davaine, and many others. In respect of the case before us, they lay particular stress upon the total absence of convulsions, which is in itself an experience

running altogether contrary to the indications commonly afforded in this singular type of cerebral diseases.

Hammond on Cerebral Hæmorrhage.—In a clinical lecture delivered at the Bellevue Hospital Medical College (*Quarterly Journal of Psychological Medicine*, no. iii.), Dr. W. A. Hammond says that by cerebral hæmorrhage 'is understood that condition which is due to the rupture of a blood-vessel and the consequent extravasation of blood either into the substance of the brain or into its ventricles, whereas the term apoplexy is generally applied to sudden cases, however induced, and consequently embraces a large number of diseases in which the prominent symptom is loss of consciousness. There are two forms of this affection, the apoplectic and the paralytic, which differ from each other in this respect, that in the former the mind is suspended in its action, whereas in the latter there is no loss of consciousness, although the mind does not generally act with its accustomed vigour after the attack.' Two cases are described. The first is an example of the paralytic variety, occurring in a laundress aged 40. After pain in the forehead occurring at intervals during two weeks, she felt dizzy, but did not lose consciousness. Her speech was much impaired, 'the muscles of the face were drawn to the left side, and the tongue pointed to the right. There was internal strabismus of the right eye. Motility was more impaired in the face than in the arm, and more impaired in the arm than in the leg. Under the Faradic current, improvement took place. In the second case there was cerebral hæmorrhage which left hemiplegia in a lad aged 16, by occupation a soap maker. At the age of eight he had an attack of acute rheumatism, and since had suffered every autumn from subacute rheumatism. While stooping to tie his shoe, he fell forward, but was caught by his brother. He was completely unconscious for at least an hour, and his left side had completely lost motility and sensibility. The face was drawn to the right side, and the tongue deviated. He could not close his left eye. He was confined to bed for a month, and then could move about a little. The speech first improved, then the leg. At the end of six weeks, he could go about without support. After three months, the muscles of the face and tongue had entirely regained their normal contractility, but the leg and arm were still much impaired. Dr. Hammond says it is doubtful if this was a case of hæmorrhage or embolism, but inclines to the former. In another lecture he describes two cases: viz., cerebral hæmorrhage with right hemiplegia; and hæmatoma of the dura mater. These patients were at the time alive, so that the diagnosis had not been verified by any *post mortem* examination.

Bouchut on the Connection of Zona and Neuralgia.—M. Bouchut (*Gazette des Hôpitaux*, Jan. 7 and 9, 1873) describes a case of zona in a little girl of 12 years. As often happens, a locally

correspondent neuralgia had preceded the eruption, in this case by twelve days. The nerves affected were the small sciatic, the external cutaneous (fémoro-cutané) and genito-crural, of the right side. [So it appears, but the term 'fémoro-cutané' is applied by Cruveilhier to what we, following Bichat, name the crural or external branch of the genito-crural nerve; the anterior branches of our 'external cutaneous' nerve are often called 'branches fémoro-cutanées' by French anatomists.—*Rep.*] The case is called one of lumbo-abdominal zona, but the distribution would be better described as inguino-gluteal, while the nerve roots probably affected were the second lumbar and the third (?) sacral. There was tenderness on pressure, after the eruption was fully out and the neuralgia relieved, in the lumbar region 'on a level with the point of exit of [the branches composing] the sacro-lumbar cord.' Referring to the well-known cases of Bärensprung (*Charité Annalen*, 3rd series, vol. ii., 1863) Weidner (*Berliner Klin. Wochenschrift*, 1870, no. 7), Wagner (*Archiv der Heilkunde*, vol. ii. 1870) Haight (*Wiener Sitzungsbericht*, 566, 633,* and Wyss (*Ibid.* 1878), M. Bouchut accepts as proved that zona depends on a 'congestive neuralgia,' or rather that it and the neuralgia which precedes, accompanies, or follows it, are alike produced by a neuritis of the corresponding branch. He doubts the existence of special trophic nerves, but thinks that the lesions of nutrition seen in zona are often reflex (*nerve ascendante*), citing an interesting case, in which he observed optic neuritis, in consequence of an injury to the eyebrow. With regard to treatment, he recommends powdering vesicles with starch or subnitrate of bismuth, and hypodermic injection of morphia, or acupuncture, leaving the needles in the skin for three hours, to relieve the neuralgia, which is sometimes obstinate after the eruption has disappeared.

M'Nutt on *Acute Diseases of the Heart, Accompanied and Masked by Functional Derangement of the Brain*.—Dr. W. F. M'Nutt (*Western Lancet*, Dec. 1872) gives two cases in which very severe maniacal symptoms came on associated, with a pericardial friction sound. Both occurred in males, aged twenty-seven and nineteen years respectively, and in the latter case the symptoms came on after an attack of rheumatic fever.—*The Medical Record*.

Wernich on the Action of Ergot.

Wernich (*Virchow's Archiv*, vol. lvi.) states that he has tested the hæmostatic effect of ergot on man, and has made a series of experiments on animals with a view to determine the nature

* See Dr. Haight's excellent drawing of an inflamed nerve in zona, copied in Neumann's *Hautkrankheiten*, p. 132.—*Rep.*

of its action on the uterus. The preparation which he employed was the officinal aqueous extract of ergot, consisting of two parts of ergotin mixed with six of glycerine and six of water. One cubic centimetre of this solution, containing 15 grains of ergotin, was injected subcutaneously for a dose. In two cases of hæmoptysis and one of epistaxis no effect followed the injection, and in one of intestinal hæmorrhage it was of very doubtful benefit. Hæmorrhage from the uterus, however, especially when occurring in anæmic persons, may be arrested completely and tolerably quickly by the subcutaneous injection, without any very disagreeable effect following its employment. A considerable quantity of the fluid injected remains for a long time in the subcutaneous cellular tissue without being absorbed. This circumstance must lessen our confidence in the remedy, and make statements regarding doses somewhat doubtful.

From his experiments on animals, he arrives at the following conclusions. First, in certain vascular districts (especially the skin, muscles, intestine, bladder, pia mater, and spinal cord) contraction of individual arteries is distinctly perceptible, especially when ergot has been injected directly into the veins. This action is not distinctly affected by division of the sympathetic. Secondly, contractions of the uterine vessels are not well marked, possibly because they are arranged in a peculiar manner. Thirdly, contractions of the uterus occur after injection of ergot. They occur somewhat after the contraction of vessels in other organs, but before any contraction has begun in the vessels of the uterus itself (indicated by its becoming paler). As they do not occur after the spinal cord has been divided, they are probably produced by irritation (possibly by that occasioned by anæmia) of the brain, or of the motor centre of the uterus high up in the cord.—*The London Medical Record*.

On Disseminated Suppuration of the Kidney secondary to certain conditions of Urinary Disturbance. By W. H. DICKENSON, M.D., CANTAB., F.R.C.P., Senior Assistant-Physician and Lecturer on Pathology at St. George's Hospital, Physician to the Hospital for Sick Children, etc.

In this paper the author proceeds to describe the peculiar suppurative condition which is sometimes spoken of as the "surgical kidney," and is produced, as he shows, by the contact of unhealthy urine. Of all renal disorders, next to those described by Bright, it is the most destructive to life. It may almost be said to form the natural termination of stricture of the urethra,

and is the especial danger which attends the use of the catheter and lithotrite.

The renal change which is always associated with signs of pelvic and vesical inflammation, and often with alterations of the gland dependent on wasting pressure and chronic vascular disturbance, essentially consists of a peculiar turgidity and friability of the renal structure, with the formation of small scattered abscesses, or soft yellow deposits antecedent to abscesses, throughout its structure. With these are usually seen conspicuous white lines in the cones, which are morbidly occupied straight tubes.

With this condition the microscope shows more or less dilatation of the straight tubes, distension of, or coagulation within, the blood vessels associated with them, and disseminated intertubular suppuration, the distribution of which is regulated by the course of the veins. (The microscopic appearances were illustrated by drawings which show the dilatation of the straight tubes; the irregular repletion of, or coagulation within, the vessels of the cones and the larger veins of the cortex; and the origination of abscesses around the affected vessels and throughout limited tracts of the intertubular tissues. The swelling of the intertubular tissue where thus unfiltered by the new cellular formation was strikingly depicted in contrast with the slender network presented by the same structure in a part of the gland exempt from the change.)

Taking the structural changes in their mutual relation, the usual dilatation of the tubular exits, the morbid occupation of the veins, and the general absence of the origin of tubal inflammation, the nature of the process is clear. The disorder has its origin in the regurgitation of urine charged with morbid products. This occupies and generally distends the straight ducts, and thence enters the neighbouring blood vessels, and charges them with an infection resembling in its results that of pyæmia. This is distributed by the veins to the rest of the gland, sowing abscesses in their course, and ultimately causing constitutional symptoms analogous to those of pyæmia when otherwise derived.

The urine being obviously either the source or the vehicle of the morbid matter, it remains to inquire whence and in what circumstances it becomes thus contaminated. To help in answering these questions the author has collected the particulars of 69 cases from the *post-mortem* books of St. George's Hospital. The disorder was traced to mechanical obstacles to the escape of urine (stricture or enlarged prostate) in 31 cases; to paralysis of the bladder in 17; to stone in the bladder or operation for its removal in 15; to cystitis from other causes in 5; and in 1 to a renal calculus complicated with enlargement of the prostate. Looking at the urine as directly connected with the origin of the disease, it appears that three conditions usually concur—retention, am-

moniacal decomposition, and admixture with the products of mucous inflammation. Of these, ammoniacal decomposition appears to be essential, or, at least, to be constantly present. The urine is generally fetid and more or less mixed with vesical products, pus, mucus, and blood. The ammoniacal change, although possibly arising independently of mucus inflammation, produces it so constantly that the origin of the disease is always thus complicated. The clinical antecedents to this condition are fundamentally of two kinds—those which begin with retention, and those which begin with cystitis; both in the end producing an ammoniacal and putrescent state of urine. Mechanical obstacles and loss of expulsive power, belonging to the first and larger class, occasion the retention and subsequent decomposition of urine, and its consequent admixture with the products of mucus inflammation. Stone and other vesical irritants, belonging to the second class, begin by causing morbid vesical discharges, which render the urine prone to decomposition, and ultimately induce in it a putrescent condition, not altogether dissimilar to that which springs from retention. The rarity of the renal disease as a consequence of stone in the kidney is probably to be explained by the less putrefactive tendency of the discharges from the pelvic membrane or of the urine in that cavity.

In cases otherwise so tending, catheterisation, lithotripsy, or some such instrumental proceeding, seems sometimes to act as the immediate instigator of the morbid process, as is witnessed by the common phrase which stigmatizes the disease as the "surgical kidney." The disorder, however, may arise independently of any surgical intervention, and would perhaps be better distinguished by the term *uriseptic*, which would declare its general clinical relations more comprehensively.

Having regard to recent researches which have associated the lower kinds of organic life with pyæmia, it is worth noting that the condition of urine which causes the disease now in question is one in which vibriones and bacteria abound. From this, however, no inference as to the nature of the virus can be safely drawn, except that it is associated with decomposition.

Passing to the symptoms of the disease, they have a general resemblance to those of pyæmia, being those of blood-poisoning rather than of renal inflammation. Unlike what happens with pyæmia, organs other than the kidney appear seldom to share in the suppurative process. The complaint usually ends fatally within three weeks of the first symptom, though there is evidence that recovery sometimes occurs. Perinephritic suppuration is an occasional result.

In treatment our efforts must be directed chiefly to prevention, to which end, beyond cautious surgery, measures of two kinds suggest themselves. First, the preservation or restoration of the natural acidity of the urine, a matter of most difficulty where it

is most needed; secondly, as a suggestion as yet unwarranted by experience, the introduction of antiseptics by injection into the bladder.

To sum up: the form of renal suppuration which may be termed urisepic has its origin in ammoniacal and putrid urine, poison from which is conveyed by the veins into the substance of the kidney, and then infects the system, causing symptoms in some respects resembling those of pyæmia. As this form of disease is little obedient to curative medicine, though not necessarily fatal, our efforts must be directed towards the correction of the state of urine from which it springs.—*The Medical Press*.

Treatment of Cancrum Oris.

C. S. KITTREDGE, M. D. of Oakland, Cal. (the *Western Lancet*), late Assistant Physician at the Nursery and Child's Hospital, Randall's Island, N. Y., publishes 19 fatal cases of this formidable affection—which is a malignant form of ulcerative stomatitis—induced in children under five years of age, predisposed to tuberculosis. The duration of this disease is from six to sixteen days, running a most rapid course when commencing in the cheek or throat, but somewhat slower in its progress when commencing in the gums. The disease demands prompt and energetic attention. He commences with the chlorate of potassa, in from five to ten grain doses every four to six hours, and continues it during the whole progress of the disease. The mouth must be frequently washed with a weak solution of liquor sodæ chlorinatæ, ʒj. to water ʒxij.; and after mortification has commenced, a pledget of soft linen, wet in this solution, should be constantly kept between the sore and the adjacent tissue. Tonics and stimulants should be freely given on account of the great prostration, and iron with bark or quinine in as heavy doses as the child will bear, and strong beef-tea in place of solid food. Out of 67 cases of stomatitis treated during the year, there were 19 deaths, or 28 per cent. Of the fatal cases, 12 were males and 7 females. The average age was two years and eleven months. In 16 cases, the primary disease was rubeola. Fourteen autopsies were made, and in every case, tubercles were found in great abundance. In 13 cases the tubercles were in the lungs, and in the other, the mesentery was filled with military tubercles. He remarks in conclusion that cancrum oris has a close connection with tuberculosis; and believes that it can exist only in children of a tuberculous diathesis.—*The Medical Press*.

On the employment of Propylamine in Acute Articular Rheumatism.

Propylamine or Triméthylamine, is a liquid alkáloid, discovered in 1850, by Wertheim, who found it in many plants,—such as the flowers of the hawthorn and the fruits of the service tree—also in the brine of herrings, cod-liver-oil, &c. This substance was tried, about 1856, with a great deal of success, by a Russian practitioner, Dr. Awenárius, in the treatment of gout and rheumatism; then in Germany and in America with the same advantageous results. The following, from the *Gazette des Hopitaux*, is a recent communication upon this subject by Dr. Dujardin-Beaumetz:—

“At the last meeting of the Medical Society of Hospitals M. Dujardin Beaumetz read to his colleagues the results of the first experiments he had made with that substance at the Hospital Lariboisiere, and at the Municipal Maison de Sante, during his services there,—and also in his private practice.

* * * * *

The Propylamine, which was used in these experiments, was extracted from the brine of herrings, and is a limpid, colorless, very volatile liquid with an excessively strong odour of rotten fish. It was prescribed according to the following formula.

R. Propylamine gr. x—xxx.

Infusion of Linden-tree leaves ʒ iii.

Essence of Aniseed q. s.

Syrup of Morphia ʒ v. M.

A table spoonful every two hours for an adult.

This preparation has been prescribed for seven patients, and the following is an epitome of their cases.

The first case was one of sub-acute Rheumatism, which, for five months, had resisted every kind of treatment—purgatives, Sulphate of Quinine, vesication and Tincture of Iodine. On the morning after the exhibition of the medicament in question, a notable amelioration was observed, and, at the end of a month, patient left the *Maison de Santé* completely cured. The Propylamine had been administered during three weeks, in doses which had never exceeded twenty grains.

In the second case it was employed against a true acute Rheumatism. It was the third attack. The two preceding seizures had lasted from four to five weeks. On the 10th of September, twenty drops of Propylamine were given, and, on the morrow amelioration was so pronounced that the patient scarcely felt any pain at all; four days subsequently he was perfectly well.

The third patient was attacked with Rheumatism for the first time. The disease had set in on the 21st September, and patient was seen for the first time on the 24th. His treatment

was commenced on the 25th with twenty grains of Propylamine. On the 6th October, the seventeenth day of the malady and eleventh of the treatment, he left hospital in perfect health.

The fourth patient was suffering from his third attack of acute articular Rheumatism from the 15th September. On the 2nd October he commenced the use of the Propylamine, and on the 21st, he went out cured.

The fifth patient was treated in the Hospital Lariboisiere, under M. Onlmount first and M. Dujardin Beaumetz afterwards. This was his fifth attack of acute articular Rheumatism, and he had been suffering from it for 15 days, from his entrance into hospital. He was placed upon Propylamine, twenty grains for a dose, and cured after six days of treatment.

The last two observations were made on patients in town. One of them, attacked for the third time with acute articular Rheumatism, recovered in six days after the exhibition of from ten to twenty grains of Propylamine. The other was cured of his second attack in eight days.

Such in substance are the facts. And the following are some details added by M. Dujardin Beaumetz.

The Propylamine was always administered as a potion, a large spoonful being given every two hours.

M. Beaumetz began most frequently with ten grains in the first twenty-four hours; then he gave on the following day twenty grains. He never exceeded thirty-five grains, and remarked that, when given in larger quantities than twenty or thirty grains, the patients complained of some warmth in the back of the throat and considerable heat in the stomach.

The forementioned formula was always given alone.

Generally, amelioration followed very rapidly. Sometimes in twelve hours after the first dose, the patients experienced great relief; their pains reduced and their movements were better borne.

Finally, in order to assure himself that improvement was due to the medicine, M. Beaumetz tried in some cases intermission of the use of the drug, and always then observed a recrudescence of the morbid phenomena.

Thus M. Beaumetz, has established, as a first effect of the medicine, diminution of pain,—and then diminution of congestive phenomena. It appeared to him that the Rheumatism became extinguished at once. In some cases he observed a tendency to metastasis, but this was slight, and, by continuing the use of the Propylamine, it was dissipated altogether.

Febrile phenomena diminished synchronously with those that are articular. Sweating was slightly increased, and the appetite returned rapidly. The cure of each attack was completed in from four to ten days.

In those cases in which M. Beaumetz was able to follow the

sick after their cure, he had not met with a relapse. He has not observed any cerebral or cardiac complication, except in those who had been previously subjects of such complications.

M. Besnier who has carried on in the *Maison de Sante* the experiments, commenced by M. Beaumetz, declared, at the Meeting, that he had obtained results identically the same with those of his colleague. M. Beaumetz, who had tried the propylamine on himself, testified to having secured the best effects. And M. Bronardel announced that he would very soon lay before the Society similar facts.

In presence of the precise representations of M. Beaumetz, supported by the testimony of others, it is scarcely necessary to urge the Medical Officers of Hospitals, who have such frequent opportunities, especially at this season of the year, of treating articular Rheumatism, to give this Agent a trial. In this way we may have, in a very short time, sufficiently numerous and certain data for arriving at a correct conclusion of its value.—*Journal des Connaiss. Medicales.*

Case of Resuscitation in a New-Born Infant after nearly four hours Artificial Respiration. By JOHN J. MARSHALL, L.R.C.S.I., &c., Physician to the Lying-in Hospital, Limerick.

On Saturday morning, Feb. 15th, I was sent for, at half-past twelve, to attend Mrs. H—, in her third pregnancy. She had been "attended" up to the time of her admission into hospital by an ignorant midwife. On examination I found the right arm and funis (pulsating) in the vagina, so having returned the funis I (according to custom) summoned a consultation with the other Medical Officers of the Institution, to which, however, but two kindly responded.

At about 1 o'clock, Drs. Kavanagh (Consulting Physician to the Hospital) and Myles being present, I "turned" and delivered the patient of an apparently lifeless male child, so much so indeed that the funis was divided, without ligature, to see if any blood would escape from the child, the placenta having been born with the head.

Not a drop of red blood issued from the cord, and the child never cried; while slapping, cold water sprinkling and brandy application failed to elicit the welcome symptom of life. However, when placed on a table and in the light, the pulsations of the heart were faintly visible, so artificial respiration was at once resorted to; the first method tried being that of having one to breathe into the infant's lungs, and another to expel the air from the same.

Perhaps the *minutiae* of the method adopted in this case may not be altogether useless to other young practitioners like myself, and to students, when the success of the case has elicited from my experienced friend Dr. Kavanagh the remark that "one should never give up a child after it."

The infant having been laid on its back and rolled in a warm blanket, was so placed that the head extended over the edge of the table and was allowed to droop a little to prevent the air passing into the stomach. The child's face was next covered with a towel, and the little nostrils having been compressed by the left thumb and forefinger of the operator (his right supporting the head), air was regularly but forcibly breathed into the lungs, and again expelled from them by an assistant's pressing alternately with his two palms on the infant's chest, brandy being vigorously rubbed into the chest by one of us. This treatment, after an hour's steady prosecution, and the heart's action scarcely detectable, was rewarded with one voluntary inspiration, but had to be immediately renewed after the gasp, which showed no signs of recurrence without the artificial respiration. Another single gasp occurred in half-an-hour, but the inflation, &c., had to be kept up as the breathing apparatus had no strength whatever.

Seeing the heart beating even so weakly we could not, nor were we willing, to abandon the little struggler, and each took his turn at the "breathing;" the child got a couple of hot baths. Sylvester's and Marshall Hall's treatment were both tried, till from a combination of them all the infant was breathing regularly at the rate of 15 per minute after our inflating him for nearly four hours, I not leaving till five o'clock, about half-an-hour before which time the first drop of blood from the funis tinged the water of the hot bath, in which we kept the child during its convalescence.

Out of all the methods of resuscitation employed in this case the breathing-in and expulsion of warm air had certainly the most beneficial effect on the infant, and especially when the mouth to mouth breathing was combined with the rising and depressing the arms.—*The Medical Press.*

Ovariectomy in a Child of six years and eight months.

A REMARKABLE case is reported in the continental journals: The child was born healthy, and in 1870 a tumour was first perceived in the abdomen; in May, 1871, it was as big as a child's head. An incision was made over the abdomen, the tumour was punctured and easily withdrawn; the pedicle was retained and tied at the inferior angle of the wound. The cyst enclosed besides a quantity of fluid, an irregular bony mass somewhat like a superior maxillary bone with depression resem-

bling the alveoli, also hairs of a yellowish colour as those of the child were, and also a fatty mass. The sutures of the wound were removed on the 9th day, and on the eighteenth day the child had completely recovered.—*The Medical Press.*

Analysis of Cobra Poison.

COBRA POISON has been recently tested as to its enduring action when taken from the snake and preserved. Some was kept in small bottles and then injected under the skin of various animals with fatal effects. It was also chemically analyzed and gave as the result—carbon, 46; nitrogen, 13; oxygen, 6; sulphur, 25; the rest of hydrogen. This, as M. Dumas remarks, is exactly the composition of beer-yeast, and supports the idea that the cobra poison is of the nature of an animal ferment.—*The Medical Press.*

Neumann on Sarcomata with Endothelial Cells, and on the Relation of the Sarcomata to the Carcinomata.

Dr. Neumann describes (*Archiv der Heilkunde*, vol. xiii.), cases of sarcoma which possessed peculiar cells, that is to say, very thin flat nucleated plates precisely resembling the endothelia of serous membranes. These plates when standing on their edge, and seen in profile, very closely resembled spindle-cells; and this illusory similarity was further strengthened by their remarkable tendency to become folded. Tumours composed of similar cells from the dura mater have already been described by Robin as 'epithelioma of the serous membranes.'

The first case was a genuine 'psammoma' of the dura mater, precisely corresponding to the descriptions and figures of Virchow, and showing the usual globular calcareous concretions surrounded by fibrous tissue. It contained cells which, when carefully isolated by maceration in very dilute solutions of chromic acid, exhibited the peculiarities already mentioned. Similar cells have, however, been seen in this species of tumour by several observers.

The second case was a tumour of the orbit, which was found to take its rise from the sheath of the optic nerve. It was partly compact in structure, and partly showed on section a distinct alveolar structure, like that of carcinoma. The cells contained in the spaces were often concentrically arranged in a manner not unlike the concentric groups of epithelioma, and these groups sometimes had a calcareous or colloid centre. The cells themselves had the endothelial character already mentioned, and might often be mistaken for spindle-cells. Similar cells with more or less interposed fibrillated connective tissue made up the stroma.

The third tumour was from the brain, and consisted partly of roundish lymphoid cells, partly of cells with an endothelial character, like those of the tumours already described, the latter being often concentrically arranged, and enclosing a calcareous or sandy central mass. Shreds of nucleated membrane, like fragments of endothelium, were also obtained. The alveolar structure was less clearly marked than in the other tumours.

Two points are thought more especially worthy of note in the characters of these growths. In the first place, they supply examples in the pathological development of connective tissue, of the occurrence of cells similar to those which the recent researches of Ranvier and others have shown to be the constituents of normal connective tissue; and, secondly, they show that morbid growths, originating strictly in connective tissue (and therefore genetically to be called sarcoma), may assume the alveolar structure sometimes regarded as characteristic of carcinoma. The question is thus raised, whether a tumour of this description should be called (as by Billroth) an alveolar sarcoma, or a carcinoma. Neumann prefers the former appellation, regarding the origin of morbid growths as the most important criterion and rejecting the alveolar structure as the exclusive character of carcinoma; but he admits the difficulty of applying the former test, and doubts the constancy of other characters relied upon by Billroth and Waldeyer.

As a further contribution to the question, Neumann describes a cutaneous tumour of the leg starting from a wart, which gave rise to secondary growths in the same limb and in the inguinal glands. The structure of these tumours was clearly alveolar, but differed from that of the former cases, in that the cells contained in the alveoli were entirely different from those which were imbedded in the stroma, the former being large and distinctly 'epithelial' in form, the latter spindle-shaped and much smaller. Transitional forms, however, were seen, as in ordinary cancer. Such a tumour, from the diversity of its cells, Neumann prefers to call a connective tissue cancer rather than an 'alveolar sarcoma,' notwithstanding its origin from connective tissue structures. The ultimate test of true carcinoma would then become the 'epithelial' character of the cells contained in its alveolar spaces, and the diversity between these and the elements of the stroma.

—*The Medical Record.*

Obstetrics and Gynaecology.

Gallard on Ulceration of the Neck of the Uterus.*—In a second lecture on ulceration of the neck of the uterus (*Le Mouvement Medical*, Jan. 25, 1873) M. Gallard refers to the same

* Continued from London Medical Record, page 118.

case which engaged his attention in the preceding lecture, and remarks that the ulceration which then extended nearly over the anterior lip, now occupied a very small space; that it passed the mouth into the cavity of the neck of the uterus. He said that when ulcerations penetrate to the interior of the cervix, the external orifice is generally more dilated than in the case before him. The speculum of Ricord, which he employed, was generally sufficient to show the presence of the ulceration within. He then remarks that in this internal ulceration intra-uterine specula were employed; but that those are too small, and that the light they admit is too small for conveniently seeing. He had tried the endoscope of Desormeaux, but without success, in consequence of the presence of the small quantity of blood which always obstructs the light. The extension of ulceration to the cervical cavity is very frequent, and he contests the opinion of Mayer, of Berlin, and Aran, who say that this is rare.

The condition of the next patient is then described. She was recently delivered, and showed an ulceration of the whole orifice and cavity of the cervix uteri, which presented the signs of ulceration of the papillæ. After this, he speaks of the different aspects of ulcerations.

In a case of a woman recently confined, he points out the form called the ulceration of the pregnant, or *ulceration variqueuse*, and shows that this form is not different from the rest, except in the enlarged state of the vessels in consequence of pregnancy.

After this, he discusses the opinion of some that the diathesis of the patient modified the character of the ulceration, *e. g.*, that a patient liable to herpes would have an herpetic state of the os uteri, &c. This opinion M. Gallard disputes. Coitus, and the friction of the os uteri against the wall of the uterus, he does not consider sufficient to be considered causes of ulceration. The lecturer finally discusses the character of malignant and syphilitic ulcerations, which he gives in detail.

With regard to treatment, he recommends solution of nitrate of silver, chromic acid, and nitrate of mercury, according to the condition of the ulceration; not neglecting the employment of astringent injections to cleanse the parts and remove the products of suppuration.—*The Medical Record.*

Barnes and Whitehead on the Various Modes of applying Remedies to the Internal Surface of the Uterus.

Dr. Robert Barnes (*British Medical Journal*, Jan. 11) discusses the dangers and utility of intra-uterine injections, and of the other modes of applying remedies to the interior of the uterus. He argues that topical applications to the diseased mucous membrane are, in many cases, essential to the cure of diseased conditions of

the mucous membrane of the cavity, just as they are in morbid conditions of the eye, throat, larynx, bladder, or rectum; but he adds that, in the form of injected fluids, they are not free from danger; and in confirmation of this opinion refers to several recorded cases, in all of which alarming symptoms, some terminating in death, followed. In some of these cases there were good reasons for believing that the fluid injected ran along the Fallopian tubes, a result due to undue patency of these canals, this patency being in turn due to obstruction at some lower part of the utero-vaginal canal. In some of the cases at least, this accident could not be accounted for by the amount of injecting force employed, but in a great measure to another force—namely, that exerted by the uterus itself contracting spasmodically upon the irritating fluid thrown into it. But it is not necessary, he argues, for the production of alarming accidents, that the fluid should run along the tube, for the irritation caused by the injected fluid may excite metritis, and the inflammation may spread to the peritoneum; and as alarming symptoms have followed the use of comparatively weak solution, the occurrence of these symptoms are not explained by the nature of the injected fluid. Dr. Barnes enumerates the precautions enjoined for preventing the dangers of intra-uterine injections—namely: (1) free dilatation of the cervix uteri; (2) the using only graduated quantities of the fluids, and injecting them slowly and gently; (3) the using a double cannula so as to secure a return current. He strongly advises that injections should not be used at all in cases of marked flexions of the uterus, and states that he rarely employs them except in cases of urgent danger from menorrhagia. In conclusion, he states his opinion that all the advantages capable of being derived from injections may be obtained by other means, for the same agents may be employed either by swabbing or in the form of solids or of ointments; thus, chromic or nitric acid, the perchloride of iron, or iodine, can be applied on a sponge or piece of cotton, the cervix having been well dilated. The nitrate of silver is best applied solid. For this purpose he fuses the nitrate of silver in a watch-glass, and dips into the fused mass the end of a probe, which he then passes thus armed into the uterine cavity. [Sir James Simpson applied the solid nitrate of silver through a *porte-caustique*, very similar in appearance to an uterine sound. His method has this advantage, that it requires no previous dilatation of the cervical canal, and that the caustic can be carried direct to the required depth without cauterizing the healthy parts.—*Rep.*]

Dr. Barnes finds the zinc points suggested by Dr. Braxton Hicks very useful topical applications; he carries them into the uterus by means of a cannula very similar apparently to Simpson's *porte-caustique*. He uses in the same manner nitrate of silver 'mixed with nitrate of potash' (we presume by fusing). A most

precious way, in his opinion, of applying remedies to the interior of the uterus, is in the form of ointments, best made without grease by the aid of glycerine or other matter, to introduce which he has designed an instrument capable of being used like a sound.

Dr. Barnes's paper concludes with some sound practical remarks on the employment of powerful styptic injection for the arrest of flooding after labour. He points out that all ordinary means of arresting hæmorrhage are aimed at producing muscular contraction, and that when these prove insufficient the case is very serious. But when the excito-motor function is suspended, and nerve-force cannot be drawn from the uterus in sufficient intensity to cause contraction, the slightest shock may extinguish life, such as the injection of cold water, or possibly even a solution of the perchloride of iron. But the styptic often comes to the rescue in such cases, for it instantly seals up the mouths of the vessels by the coagula which it produces, and the system has time to rally. The iron acts and saves life when plain water is injurious; the great lesson to be learned is, to take courage and to use the styptic in time. In some cases it is possible to carry a swab of sponge, soaked in the iron solution, into the uterus; in this way some risk may be avoided. The proper strength of the perchloride solution is one in ten.

Dr. Whitehead, in the *British Medical Journal* of Feb. 1, relates the particulars of three cases in which he treated a granular state of the lower segment of the cervix and cervical canal by applying a solution of nitrate of silver (one drachm to three of water) on saturated lint, maintained in contact with the unhealthy surface by additional pledgets of lint pushed up through the speculum. In all, violent pains, tympanites, and extreme abdominal tenderness occurred. All these patients, however, did well and bore children subsequently. He, however, gives up this plan as not being free from danger, and treats such cases by injecting through a graduated catheter-syringe not more than twenty or thirty minims of a weak solution (a grain and half to the ounce), quickly drawing back the piston so as to bring back the fluid. This plan is never followed by an unfavourable symptom, and generally produces satisfactory results. Notwithstanding this he has, however, nearly abandoned injections, and now treats endometritis by applying remedies by means of Lallemand's *porte-caustique*.—*The Medical Record*.

MEDICAL INTELLIGENCE.

(General Orders by the Governor in Council.)

Hospital Stoppages.

8th April 1873.

No. 94 of 1873.—With reference to that portion of the scale of Hospital Stoppages (para. 106, Section XIV., page 317, of Pay and Audit Regulations) to be recovered from Civil Patients when treated in Military Hospitals, and which was omitted in the last edition of the Medical Code, the Governor in Council is pleased to direct that the following scale now in use in the Civil Hospitals at the Presidency, be considered applicable to all individuals employed in the Civil Department of Government, when receiving medical treatment and diet in any Military Hospital:—

Monthly salary or income.	Daily stoppages.		
	Rs.	A.	P.
Below 25 Rupees	...	Free.	
25 to 50	...	0	4 0
50 to 100	...	0	8 0
100 to 150	...	0	12 0
150 to 200	...	1	0 0
200 to 300	...	2	0 0
300 and upwards	...	5	0 0

(General Orders by the Commander-in-Chief.)

Dress.

No. 32.

With the sanction of Government the Commander-in-Chief is pleased to notify that the new pattern patrol jacket, mess jacket, and waistcoat, as described in Horse Guards General Orders Nos. 18, and 71 of 1872, are to be worn by officers serving with regiments of the Native Army dressed in red, when the pattern at present in use is worn out.

* Madras G. O. C. C. 8th November 1872, p. 435.
† Do. do. 16th December 1872, p. 400.

Transport—Railways.

No. 36.

The following to be added as para. 131a Transport Regulations, Part II:—

131a. In cases where officers' chargers cannot proceed in the same train with their owners, separate warrants are to be granted for the chargers and their attendants, distinct from the officer's personal warrant.

Sanitary.

No. 40.

The mortality which takes place among the British troops, more especially during such a sickly season as that of the past year, renders it incumbent on all officers to whom the care of soldiers is entrusted, to consider every point that may affect their health, and to take every possible precaution to preserve it.

2. With this view, His Excellency the Commander-in-Chief desires to call the attention of every officer Commanding bodies of British troops to the necessity of ensuring, as far as possible, the purity of the drinking water for the soldiers under his command.

3. The Government of India has sanctioned Macnamara's filters being issued to all British corps, but as some time must elapse before these can be supplied at every station, the ordinary gurrah filter must still, in many cases, be depended upon.

4. To ensure this filter working properly, it is essential that the sand should be perfectly clean; but the Commander-in-Chief, during his inspection, has almost invariably found that this important point has been overlooked both in barracks and hospitals; and that the water, although drawn in some instances from pure sources, has been deteriorated by being passed through impure filters.

5. Commanding officers are directed to cause the sand, supplied by the Commissariat Department, to be tested by careful washing, and to reject it if not clean, that is, if after being stirred up in water it does not, when settled, leave the water perfectly clear.

Leave.

No. 54.

The following letter from the Secretary to the Government of India, Military Department, to the Chief Secretary to Government, Fort St. George, is published for general information, with reference to the orders marginally noted:—

"With reference to your docket No. 121, dated the 11th January 1873, inquiring to what extent* G. G. O. No. 528 of 1872 affects Rule XV. of the Furlough Regulations of 1868, I am directed to acquaint you, for the information of the Right Honourable the Governor in Council, that that part of † G. G. O. No. 1 of 1872 which amended Rule XV. of the Furlough Regulations of 1868 was cancelled by ‡ G. G. O. No. 133 of that year; and * G. G. O. No. 528 of 1872, publishing the Secretary of State's instructions, was issued inadvertently without the explanation which might have obviated any subsequent reference."

"2. The Rule XV. therefore is in all respects unaltered; * G. G. O. No. 528 of 1872, it will be observed, only explaining more fully the last sentence of the second clause of the rule. But it will be remembered that, under § G. G. O. No. 797 of 1872, no leave of absence, granted by competent authority to Staff Corps officers, will involve forfeiture of appointment."

Advances—Passages—Insanes.

No. 57.

With the sanction of the Government of India, and in continuation of * G. O. 399 of 1872, the Commander-in-Chief directs that whenever the attendance upon sick or insane officers, of a medical officer or of an escort is considered necessary and funds are not immediately available for the cost of their passage, the requisite advance, under the authority of a division or brigade order will be made by

* Madras G. O. G. 21st May 1872.
 † " " 16th January 1872.
 ‡ " " 20th February 1872.
 § " " 9th August 1872.
 * Republished below.

the officer commanding the battery, or by the Paymaster of the regiment to which the sick officer belongs, or by the Circle Paymaster from whom his pay is drawn.

2. As a heavy expense is thus incurred by Officers so situated, His Excellency desires that medical officers will refrain from recommending their immediate removal, whenever they can with safety be retained under treatment or observation until an opportunity occurs for sending them with troops moving in ordinary relief, and under whose charge they may be placed.

Head Quarters, Lawrencepoore, 13st, December, 1872.

Railways—Passages—Insanes.

399.

The following additional rules are to be entered after the third clause of para. 124, Transport Regulations, Part II.; namely.—

"When the necessity for an escort for an insane or sick officer returning to England is clearly established by the report of a Medical Board, it may be provided; the officer, or, in the event of his subsequent death, his estate bearing all necessary expenses not provided for by the Regulations.

But if no funds are available on the spot to meet the expense, the brigade or division order, with the Medical Board's report, will be sufficient authority for the Audit department passing the charge to the personal debit of the officer for whom the escort was provided. The charge will then be recovered from the pay and allowances or other funds belonging to the officer, either in India or in Europe as the case may be."

It is to be clearly understood that in no case is a Government railway or other free pass to be granted to the escorts accompanying insane and sick officers, under the above circumstances."

Controller of Military Accounts, No. 5703, dated 17th November 1872.

Military Department.

No. 70 of 10th September 1871.

55 Years' rule—Directing due discretion to be exercised by Heads of Departments in removing subordinates from the service under the—

The subjoined Order of Government is published for the information and guidance of Ordnance Officers.

Proceedings of Government, dated 15th July 1872, No. 551.

The attention of Government has been drawn to several recent cases in which Heads of Departments, without assigning inefficiency as a cause, have summarily removed subordinates under the fifty-five years' rule, when their service fell short by a few days only of the period which would have entitled them to a pension instead of a gratuity, or to an increased rate of pension.

2. The Government of India have already intimated that the rule should be worked with discretion in the interests of the State, as the premature retirement of an efficient officer imposes a needless charge, and, in the interests of the individual also, Heads of Departments should ascertain before removing their subordinates under the rule in question, what the exact period of their service amounts to, and whether their claims to retiring allowance are likely to be seriously prejudiced by immediate removal.

3. The Government resolve, therefore, to point out that the rule should not be enforced in cases where the retention of an individual in the Government service for a *brief period* will confer a title to a pension in lieu of a gratuity or to an increased rate of pension, without prejudice to the interests of Government.

MEDICAL FUND OFFICE.**Retirements.**

Surgeon Major W. AITKEN, M. D., from 30th January 1873.

Veterinary Surgeon E. B. DAWSON, from 19th September 1872.

FORT ST. GEORGE,
30th April 1873. }

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c., from 1st to 30th April 1873 for securing the following rates of pension.

Names of Subscribers.	Children's date of birth.	Sex.	Rate of Pension secured.	To what period.	Payments how made.
T. Beaumont	14th Augt. 1872.	Female...	Full ...	To D or M &c.	By Donation.
A. Hunter	20th Oct. 1855.	do. ...	do. ...	*From 21 to D or M &c.	
S. J. Wyndowe	29th April 1871.	do. ...	do. ...	* do.	
J. J. Heffernan	26th Sept. 1872.	do. ...	do. ...	* do.	

N. B.—The rates of Pension marked thus *are additional to those previously secured.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
April 1873.

TO CORRESPONDENTS.

Inspector-General of Hospitals, I. M. D.—*Received with thanks.*

Assistant Apothecary J. DALE.—*Received with thanks.*

BOOKS, &c., RECEIVED.

The Doctor, *March 1st.*

Medical Press and Circular, *March 5th, 12th, 19th, 26th.*

London Medical Record, *February 26th, March 5th, 12th, 19th, 26th.*

Indian Medical Gazette, *April 1st.*

Journal des Connaissances Médicales, *March 15th and 30th.*

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THE MADRAS
MONTHLY JOURNAL
OF
MEDICAL SCIENCE.

No. XLII.—JUNE, 1873.

ORIGINAL ESSAYS.

ART. XXVII.—*A case of Peritonitis caused by Intestinal Worms.* By JOHN MURRAY, M. D., Superintendent, Lunatic Asylum, Madras.

A NATIVE male patient named Madura Moodelly was admitted into the Madras Lunatic Asylum, on the 24th April 1868. He was found to be suffering from Melancholia, the first symptoms of mental derangement having commenced four years previously.

The patient was well educated and had formerly held a responsible post in the Public Works Department.

On admission to the Asylum his physical health was very indifferent, he had little inclination for food and was decidedly anæmic. The bowels were not disordered, but as the patient seemed to have some abdominal uneasiness and was observed to have the habit of grinding his teeth, the presence of worms in the intestines was suspected and a dose of santonine was administered. This resulted in the expulsion from the bowels on the following day of 208 lumbricoid worms, with much benefit and relief to the patient, whose general health from that time commenced steadily to improve, though his mental condition remained unchanged.

All these worms were alive, and were passed very tightly rolled up together in a number of detached ball-shaped masses.

In 1871, after three years had elapsed since the first attack, he again appeared to be suffering from worms, and after a dose of santonine had been given, he experienced the same relief as before, the number of worms passed on this occasion amounting to 200.

All this time the patient's mental condition was steadily deteriorating, and he became latterly quite idiotic, requiring constantly to be watched in order to prevent him eating mud, stones, or any filth that came in his way.

On the 3rd of March 1873 the patient was again brought into hospital evidently out of health and very anæmic in appearance, but from his utterly fatuous condition it was extremely difficult to ascertain what was the matter with him. He was, however, ordered tonics, extra diet, milk, &c., and continued without any particular symptoms till the 17th when slight œdema was observed both in the face and limbs.

Thinking it possible from his antecedents that there might be worms in the bowels, a dose of santonine was given on the night of the 17th, but no result followed till the 21st when 104 round worms were discharged. This seemed to give relief and the œdema of the face and extremities was considerably diminished.

The patient continued to have extra diet, the Citrate of Iron and Quinine, and three ounces of gin daily.

On the 23rd and 27th the santonine was repeated with the effect of dislodging 113 worms, fifteen of the number being vomited up, and the remainder passed by the bowels.

On the morning of the 30th there was tympanitis and evident abdominal pain for the relief of which turpentine fomentations were freely applied; later in the day, however, collapse set in and death took place the same evening. During the day, for the first time from the commencement of his illness, the bowels were relaxed, and along with the fluid, reddish-colored evacuations, 26 more worms were passed.

Between the 21st and 30th of March therefore, the patient passed altogether 243 worms.

The autopsy took place 8 hours after death and owing to the objections of the relatives, the abdomen only was examined.

On opening the abdominal cavity slight vascularity of the peritoneum and intestines was observed, and there was also considerable effusion of yellowish colored serum. There were no adhesions, agglutination of the intestines or other inflammatory indications. Three large round worms were observed crawling about on the surface of the intestines, and another was found making its way out of the duodenum through a small perforation in the intestinal coat. Three more similar perforations were found in the immediate vicinity, through which the other worms had doubtless emerged.

A number of live worms were found in the intestinal canal, but not a trace of ulceration or other disease could be detected. The intestinal coat, however, particularly in the duodenum, was observed to be unusually thin and fragile, and the mesenteric glands were greatly enlarged. The other viscera were apparently healthy. The existence of worms in the stomach and intestines, especially in India, is too common an occurrence to require any particular notice, though how they get there, and in such vast numbers, is very difficult to understand.

In most cases, however, they are found only in the interior of some part of the alimentary canal, and the noteworthy feature in the present instance is their escape from the duodenum into the peritoneal cavity, thus setting up inflammation of the serous membrane, which in all probability was the immediate cause of the man's death.

There are only a few cases on record where worms are reported to have forced their way through the wall of the intestines, and when this has occurred it is generally believed that the worms being themselves unprovided with any boring or perforating apparatus, merely made their way out through previously existing openings in the coat of the intestine, the result of ulceration or other disease. In the present case, however, there was no trace of ulceration to be discovered, and I have no doubt whatever that the openings in the duodenum were made by the worms themselves, the unusually thin and yielding structure of the intestinal coat, previously mentioned, causing it easily to give way under very slight pressure from the creatures in their efforts to escape.

ART. XXVIII.—*Polypus of the Uterus*. By J. DALE, Assistant Apothecary, Lying-in-Hospital.

30th March, 1873.—Ummanee, æt. 35, married 20 years; has three children alive; had three miscarriages.

This woman was brought to the Lying-in-Hospital at 4 P.M., with a large, soft, fleshy tumor of a deep red color, protruding from the vulva, highly vascular, but not painful to the touch.

On tracing the growth upwards, two distinct pedicles could be felt, one anterior, long, thin and apparently attached to the fundus of the Uterus: the other posterior, short somewhat thick and attached to the cervix. The uterus could not be felt over the pubis or by a rectal examination. A catheter passed into the bladder, could be distinctly felt through the rectum; the tumor at first sight gave the impression of its being an "Inverted Uterus."

History.—Patient states that during the past two years, a portion of the tumor was always slightly protruding, but occasioned little or no inconvenience; she menstruated regularly, and her general health was good. During the last six months, however, she bled from time to time, passing occasional clots; and having irregular catamenial periods. This morning while lifting a basket of plantains the whole mass suddenly protruded, bringing with it in its descent the fundus of the Uterus which could be felt at the Os.

5 P.M.—The bladder having been emptied of its contents, a ligature was firmly applied as high up as possible, and the pedicles divided with a pair of scissors; there was no bleeding. The growth after removal weighed 12½ ozs. and when divided with a scalpel, a large quantity of purulent matter escaped; the tumor thus contained an abscess about the size of a small orange.

Tinct. Opii. ℥. xv.

Aquæ, 3 i. stat.

31st.—Had a comparatively good night, slept pretty well, has a slight bloody discharge. This morning she was examined with the speculum, the ligature was found absent, having evidently come away during the night; a sound was introduced into the uterine cavity but nothing abnormal detected.

2nd April.—Patient was again examined with the speculum and a sound passed into the Uterus; the discharge is of a dirty brown color; complains of slight tenderness over abdomen.

Quiniae Sulph. gr. ii.
Tinct. Opii. ℥. x.
ter in die.

6th.—Continues to do well, there is no abdominal tenderness, appetite good, sleeps well, discharge becoming less daily.

Cont. medicine.

12th.—Patient continued to do well since last report, the discharge ceased two days ago, and, as she is desirous of leaving hospital, is discharged at her own request.

GENERAL HOSPITAL REPORTS. SURGICAL DIVISION.

ART. XXIX.—*A case of Traumatic Tetanus under the care of Surgeon-Major J. L. PAUL, M. D.*

13th February, 1873.—Armoogum, aged 7 years, was admitted into hospital of the 12th February 1873 at 9 A.M., complaining of stiffness and pain over the right side of the neck, and of stiffness of the muscles of the lower jaw of four days' duration.

The Sterno-Cleido Mastoid of the right side of the neck is rigid and turns the face to the left side. Patient cannot open his mouth freely, nor stretch out his tongue. There is difficulty in mastication and deglutition. There is some rigidity of the Recti muscles of the abdomen; the right Orbicularis Palpebrarum is also rigid and contracted, causing a partial closure of the right eye. Patient has also cough with a scanty expectoration. On examination of the chest, mucous rales are heard all over; expiratory murmur is roughened; tongue foul and thickly coated with white fur; appetite impaired, pulse weak and frequent, skin slightly hot. Temperature 99.8°. Perspires often about the forehead.

History.—Patient had fallen from a height of about three feet into a drain and received a small lacerated wound over

the right frontal eminence; the wound has perfectly healed leaving at present an indurated cicatrix; the stiffness of the lower jaw came on four days after the accident.

Had on admission the following.

R. Pulveris Jalapæ Compositæ, 3 ss.
Calomelas, grs. i.

Misce fiat pulvis. To be taken at once. This moved his bowels twice freely.

Had last night five minims of Tincture of Belladonna every second hour.

Diet milk.

14th February.—The stiffness of the lower jaw is not so great as yesterday, he can open his mouth better. Temperature 99.4°. Had ten minims of Tincture of Belladonna every second hour.

Vespere.—Temperature 100° F. Pupils not dilated.

15th.—Temperature of the body this morning is 99.8°. Patient feels better, can open his mouth better. Had Tincture of Belladonna minims ten every hour yesterday and minims ten every second hour last night. Had one pint of beef tea.

Vespere.—Bowels moved twice during the day, took all his food. Temperature 99.2°.

Taking Tincture of Belladonna minims fifteen every hour. Had five doses on the 16th night.

17th.—Had during the whole of yesterday fifteen minims of Tincture of Belladonna and as he was sleeping last night, had only five doses of fifteen minims. Bowels moved once freely last night, looks very much better, can open his mouth better. Temperature 99.2° F.

Vespere.—Fifteen minims of Tincture of Belladonna were given regularly from 6 A. M.

Temperature 99.6° F.

18th.—Patient took during the whole of yesterday and last night, 3 v. of Tincture of Belladonna. Last night his abdomen became tympanitic for which a Turpentine enema was administered, after which bowels were moved freely.

This morning the temperature is 99.2°.

Had ℥ xv. of Tincture of Belladonna every hour.

19th.—Patient can spit out the saliva; pain complained of in the right side of neck. Had during the whole of yesterday and last night 3 v. of Tincture of Belladonna; complains of much hunger. Temperature 99°. Vespere 98.8°.

20th.—Had 3 iv. yesterday and last night; has still the tetanic look about his face; can swallow fluids better. Bowels moved once yesterday and once this morning. Temperature 98.2°. Vespere. Temperature 99°.

21st.—Had 16 doses of Tincture of Belladonna yesterday and last night, amounting to 3 iv. Bowels moved once last night; complains of pain over right side of neck; expresses himself to be better, temperature 98.6. Vespere, Temperature 99°.

22nd.—Had taken yesterday and last night 3 iii. ℥ xv. of Tincture of Belladonna; bowels regular; pupils slightly dilated; is able to move, to sit up and rise. Temperature 98.4. Tincture of Belladonna ℥ xv to be given every 3rd hour. Vespere. Temperature 99° F.

23rd.—Had five doses of ℥ xv. of Tincture of Belladonna amounting to 3 i. and ℥ xv. yesterday and last night; slept pretty well last night; takes all his food; said to have perspired much last night; feels weak this morning. Temperature 99°.

24th.—Had seven doses of Tincture of Belladonna amounting to 3 i. and ℥ xlv yesterday and last night; takes all his food; said to have perspired much last night. Bowels were moved once this morning. The Recti muscles of abdomen and External Oblique are still rigid, temperature 98.4° F. Vespere. Temperature 98.6°.

25th.—Had last night the following

R. Santonini, grs. iij.
Pul. Ipæcac. Co. grs. v.

Misce. Fiat pulvis, to be given at bed time followed by ʒiij. of castor oil which was given to him this morning. Temperature 98.4. The Recti and External Oblique muscles of the abdomen are still rigid. Patient can move about.

Vespere.—Bowels moved twice; patient passed eight large Ascarides Lumbricoides. Temperature 98.4°.

26th.—Has passed no more worms; feels much better;

walks about without any assistance; the rigidity of the muscles still continues. Temperature 98.4. *Vespere*. Temperature 98.2°.

27th.—Had last night the following with a dose of Castor. oil this morning.

R. Santonini, grs. iij.
Pul. Ipecac. Co. grs. v.

Misce. Fiat pulvis, to be taken at bed time. Passed one round worm last night. Temperature 98.4

Vespere.—Bowels moved thrice, passed three more round worms, altogether amounting to twelve worms from the 25th instant.

28th.—Is improving, walks better, but still weak. Temperature 98.6°. *Vespere*. Temperature 98.8°; wishes to have curry and rice.

1st March.—Patient slept prett. well. Bowels were moved twice yesterday, takes all his food. Temperature 98.4.

2nd.—Is doing well, is able to walk about, bowels were moved once last night and once this morning.

3rd.—All medicine is discontinued. Patient is able to open his mouth, takes all his food, moves about.

4th.—The abdominal muscles are still to some extent rigid, otherwise the patient is doing well.

5th.—Is improving.

6th.—Takes all his food. Patient is able to play about; asks to leave hospital.

7th.—Muscles of the abdomen continue tense, he is unable to run.

8th.—Is doing well.

10th.—The abdominal muscles are relaxing, takes all his food, sleeps well, wishes to leave.

A Case of Traumatic Tetanus.

14th February 1873.—Manajeerón Row, æt 30 years by occupation a coachman was admitted into hospital with rigidity and pain in the muscles of lower jaw and neck, and inability to open his mouth more than to a very slight extent indeed, the fissure between teeth admitting only a moderately sized lead pencil. There is also pain along both shoulders and in the pectoral region. Pain is described by patient as pricking and dragging in character.

Patient experiences difficulty in swallowing, he is consequently constantly attempting to relieve himself of a flow of saliva and increased mucous secretion by spitting it up. Teeth this morning set. Patient sits moaning on his bed with his body bent forwards, pain very severe, skin warm, pulse 90. There is a small wound on forehead nearly healed, said to have been caused by a piece of wood striking him on forehead. On the tenth day, after receipt of wound, tetanic symptoms set in, and on the evening of same day patient came to the hospital. On admission had 40 grains of compound powder of Jalap given him. Bowels moved twice.

Tinct. Belladonnæ, $\mathfrak{m}$ xv.

Aquæ, $\mathfrak{z}$ ss.

Every 2 hours at 5 P.M.

7-9-11—1. A. M. 3-5-7— $\mathfrak{z}$ ii. in all.

14th February.—At 10 A.M. had 8 minims of a solution of atropine (gr. i. to $\mathfrak{z}$ i.) injected hypodermically. The same was repeated at 2 P.M. and 5 P.M.

Vespere.—Increased heat of skin, temp. 102.2° ; pulse, 104; pupils not much dilated; patient's pain and distress increased; not able to swallow at all; supported by enemata.

15th.—Died last night in great agony. Before death was restless and excited; kept walking up and down the ward; lips dry, throat and tongue dry; pupils not dilated.

Hypodermic Injection.

At 7 P.M.	...	8 Minims.
10 P.M.	...	12 do.
12 P.M.	...	8 do.
2 A.M.	...	8 do.

In all 60 minims = $\frac{1}{3}$ gr. atropine.

ART. XXX.—4 *Note on the Hypodermic Injection of Vaccine Lymph in the treatment of Small-Pox.* By
GEORGE SMITH, M. D., Physician, General Hospital,
&c., &c.

WE are familiar with the fact that vaccination is prophylactic of small-pox, but we may not all be so familiar with the view entertained by some that the vaccine virus, whether implanted in the usual way or injected hypoder-

mically into a patient suffering from natural small-pox, influences for good the subsequent course of the disease. The question of the curative powers of vaccine virus in variola is one of practical interest, which requires for its solution much careful observation and experiment.

In the "*Lancet*" for August 10, 1872 will be found a communication from Mr. Furley, which first drew my attention to the subject, and which induced me, when an opportunity offered of having a few cases of natural variola under treatment in the General Hospital, to employ the hypodermic injection of vaccine lymph, and to record the results. In instituting the experiment I had no theory to support, nor any predilection that the results should either support or run counter to Mr. Furley's views.

The number of patients in whom the experiment was tried is very small, and nothing certain can be deduced from a field of observation so limited. They were, however, the only cases of unmodified small-pox (three discrete and one semi-confluent) which have recently come under my care, and if the results observed serve no other practical purpose than to induce others to carry on the experiment they will not have been recorded in vain.

The accompanying chart, which has been carefully drawn up from the Hospital case book by my clinical clerk Mr. Macdonald, shows (1), in black, the standard temperature tracing of variola vera as given by Wunderlich,* and, (2), in colors, the corresponding tracings of the four cases in which the hypodermic injection of vaccine lymph was employed. The days on which the injections were made are, in each case, marked with arrows.

The quantity of lymph injected on each occasion equalled the contents of five capillary tubes, and the lymph was procured fresh, as required, from the vaccination depôt in Chintadrapettah. The injections were made with an ordinary hypodermic syringe, sometimes in the arm, sometimes a little above the knee. Similar injections were also tried in a few varioloid cases. In a few cases no local effects followed; in others, a phlegmon, more or less large, appeared, which in some instances passed on to the vesicular and pustular stages, whilst in others it gradually subsided by resolution.

On looking at the tracings on the chart we observe that the hypodermic injection of vaccine virus was followed, in all the cases but one, by a remission of the primary fever.

* Tab. 4, Fig. 26.

that in all the injected cases the suppurative fever, which appeared on the 9th day, remitted in a marked manner; and that the recurring febrile action, due to local complications and visible in the typical tracing is entirely absent in all, thereby reducing, by nearly one half, the whole duration of the disease. A comparison of these tracings also with those given by Wunderlich as typical of small-pox *after vaccination*, will show the points of difference between the prophylactic and the curative influences of vaccination.*

It may be said that possibly the cases might have run a similar course had no hypodermic injection of lymph been made:—possibly this might have been the case. I admit that the instances are too few in number for confidence to be placed in their results, but this much may be said, that the results, such as they are, all look in one direction, that is, they all favor the view that the vaccine virus has the power of influencing for good the progress of variolous action.

Mr. Furley gives a quotation from Sir T. Watson's *Practice of Physic* (Vol. 2, p. 950, Ed. of 1871) which bears directly upon the matter in question; the quotation is as follows:—

“The following case related to me by Dr. Johnson shows that vaccination may curb the small-pox even when performed at a later period after the reception of the variolous poison. A boy in a house where a fatal case of small-pox had occurred was vaccinated for the first time. About the fourth day after the operation when the vesicles were beginning to rise, he sickened with small-pox. The initiatory symptoms were severe, and an abundant eruption appeared. About the fourth day, however, the variolous eruption rapidly subsided, and the child was convalescent. Meanwhile the vaccine pustules pursued their regular course. The vaccination was just in time to arrest the progress of the small-pox.” Knowing the average period of incubation of small-pox to be 14 days, it is evident that 10 days of the incubation period had elapsed before the boy was vaccinated; vaccination did not in this case act as a *prophylactic* because the small-pox actually set in with severe initiatory fever, it acted solely as a *curative* in causing the summary abortion of the variolous action.

* Vide Wunderlich's *Medical Thermometry*, Table IV., Figs. 21, 23, 24.

VEPERY HOSPITAL REPORTS.

ART. XXXI.—*A Case of Metro-peritonitis consequent on Abortion.* Under the care of Assistant Surgeon L. C. NANNEY, Acting Surgeon, 2nd District.

MUNGAY, æt. 25, widow, admitted on 14th March complaining of intense pain of an acute character in the belly which is increased on pressure, or the slightest movement. Lies with the legs drawn up; the breathing thoracic. Face pinched with anxious expression. Pulse small, hard and wiry 120. Pain first originated in right ovary 4 days ago and has gradually extended over the whole abdomen. Catamenia stopped for 2 months when a very profuse discharge made its appearance on the 8th.

On making a vaginal examination the os uteri is found to be low down, patulous, and finger can be easily passed into it. Right ovary much enlarged and some fluctuation can be felt. Vagina hot and painful. Temperature 101.6° .

Warm bath.

Turpentine stupes day and night.

Opium grs. ii. statim, and grs. i. every hour.

Hypodermic injection of morphia grs. $\frac{1}{2}$ every twelfth hour.

Milk and Mutton broth.

Arrack oz. 4.

Vespere.—Temperature 101.2° ; pulse, very small and hardly be counted; slight tendency to feet becoming cold. Tympanites more marked.

Continue Opium.

Hot bottles to feet.

15th.—Pupils contracted; has had since yesterday ten grains of opium and one of morphia. Has dozed occasionally. Bowels opened in bed three times, vomited twice during the night. Passes urine freely, hands clammy. Pulse imperceptible. Temperature 99° . No relief to pain in belly.

Cont. treatment.

Vespere.—No vomiting. Bowels opened once, stools liquid yellow. Pain somewhat less in left iliac fossa, very intense in right. Pulse imperceptible, lies with her legs drawn up, and moaning. Temperature 99.6° .

16th.—Slept at intervals during the night. Is under the

influence of opium. Bowels frequently opened during the night. Pulse 104 fuller. Temperature 101°.

Cont. treatment.

Vespere.—Motions passed involuntarily in bed. Resp. labored 16. Temperature 101°. Pulse 140.

17th.—Pulse 100, small and intermitting. Less pain, but breathing gasping, more anxious, voice low and husky.

Cont. arrack, 8 oz.

Vespere.—Bowels opened involuntarily, can hardly articulate. "Facies Hippocratica." Skin cold and clammy.

18th.—Is insensible to all that is going on around her. Pulse 120, very weak, expired at 3 P. M.

Autopsy 18 hours after death.—Body well nourished, abdomen distended with flatus. Parietal layer of peritoneum red and congested, visceral layer adherent, flaky and purulent. Omentum adherent to small intestines and had to be torn away on account of adhesions. Pus infiltrated between the convolution of the bowels, which are also adherent. Pus in the pelvic cavity. Right ovary and uterus matted together by firm and recent adhesions about $\frac{1}{2}$ inch in thickness. Both organs much increased in size, abscess (encysted) found in right ovary near the corpus luteum in that organ. Uterine cavity enlarged with decidual membrane, dark and gangrenous attachment of placenta on posterior surface of fundus well marked. Uterine tissue softened.

A case of Small-pox treated by Carbolic acid.

Emma Jane Smith æt. 8 admitted last night (28th January 1873) with pain in back, head and limbs accompanied by nausea. Fever came on, on the 26th with rigors. Has never had Small-pox nor been vaccinated; arrived in Madras from Australia two months ago. Temperature on admission 103°; pulse 120.

This morning (29th January) temperature 104°; pulse 130. There is a papular eruption appearing on the face, and imparting a peculiar shotty feeling to the hand. Tongue coated with a creamy fur. Bowels open.

Body to be coated three or four times a day with Carbolic oil 1 to 40.

R. Acidi Carbolici $\mathfrak{m}$ iii.

Aque. 3 iss.

Ft. haustus ter in die.

Milk diet. Mutton Broth 1 pt.

Lemonade 1 pt.

Vespere.—Temperature, 103° ; pulse, 120.

January 30th.—Papulae appearing on trunk and lower extremity; passed an indifferent night. Temperature, 99° ; pulse, 120; resp. 24.

Vespere.—Temperature, 100° ; pulse, 120.

31st.—Minute vesicles appearing on the summit of papulae on face. Temperature, 101° ; pulse, 130.

Vespere.—Temperature, 101° ; pulse, 130.

1st February. Vesicles umbilicated; slight areolae around one or two which showed a tendency to coalesce. Temperature, 100° ; pulse, 120.

Vespere.—Temperature, 100.0° ; pulse 110.

2nd.—Passed a restless night; there was a tendency to wandering, slight puffiness of face. Temperature, 100° ; pulse, 120.

Vespere.—Temperature, 101.2° ; pulse, 110.

3rd.—The vesicles are becoming pustules, and skin and cellular tissue mellow.

Pulse, 100; temperature, 100° ; resp. 42.

Vespere.—Pulse 100; temperature 100° ; resp. 42.

4th.—Pustules general, restless and delirious last night; pulse, 100; temperature, 100° .

Vespere.—Pulse, 100; temperature, 100.4° .

5th.—Scabs forming on face this morning. Tongue thickly coated; bowels regular; temperature, 100° ; pulse, 100; Secondary fever has been mild.

Vespere.—Temperature, 100° ; pulse, 100.

6th.—Temperature, 100° ; pulse, 100.

Vespere.—Temperature, 101.4° ; pulse 110.

7th.—Scabbing going on very satisfactorily; temperature, 100° ; pulse, 100.

Vespere.—Temperature, 100.4° ; pulse, 110.

8th.—Scabs falling off the face and mouth ; appetite good ; tongue clean.

Temperature, 98° ; pulse, 100. *Vesp.* T. 100° ; P. 110.

9th.—Pulse, 100 ; temperature, 100° . *Vesp.* Temp. 99.6° .

10th.—Temperature, 98.6° ; pulse, 100. *Vesp.* Temp. 100° .

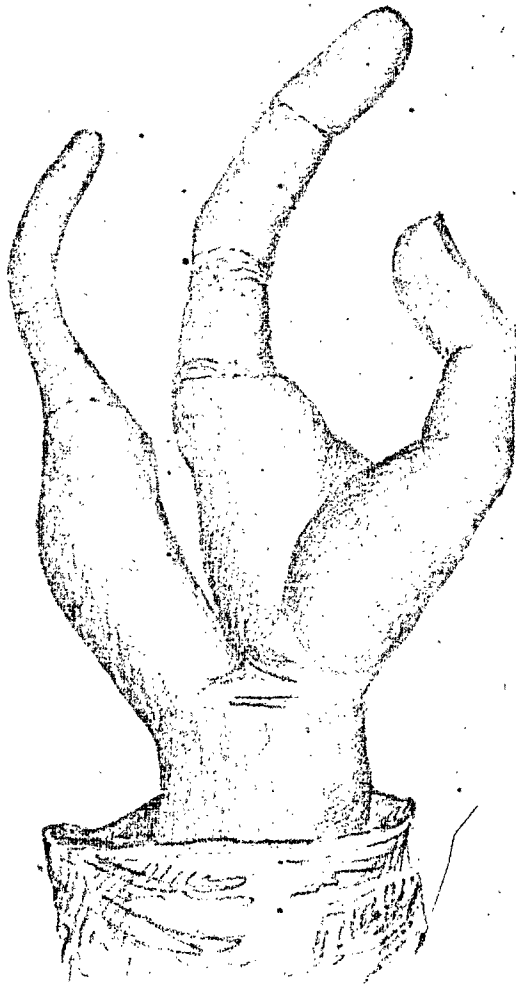
11th.—Temperature, 98.6° .

26th.—Well, discharged.

ART. XXXII.—*Curious arrest of development of the Hand.*

By W. N. CHIPPERFIELD, late Supt., Eye Infirmary.

A boy about 7 years of age came under observation in the Eye Infirmary having a congenital deformity of the right hand, the ring and middle fingers being wanting. The appearance is pretty well shown in the accompanying sketch. There is a well-marked fissure extending through the palm and wrist, almost to the lower articular surface of the radius, due to the absence of the semilunar, scaphoid, and third and fourth metacarpal bones. The second metacarpal bone and its phalanges are very well developed, but the phalanges of the little finger are comparatively small. In flexion and extension movements of the hand, the two parts into which it is divided move symmetrically ; adduction influences only the inner fragment, and abduction only the outer. In closing the hand, the little finger is not flexed but twisted in under the grasp of the thumb and index finger.



PAIM

ART. XXXIII.—Cases treated for different forms of Intermittent
ant Surgeon F. W. HODDER, M.B., Left wing H. M's. 45th

No.	Rank.	Regiment.	Name.	Disease.	Dates of Injection.
1	Pt.	45th.	J. Morgan	Quotidian ague	(1st) 1st Aug. 1872. (2nd) 7th Aug. 1872.
2	"	"	Thos. Johnson	Quotidian ague	2nd Aug. 1872
3	"	"	R. Welch	Quotidian ague, and Ch. Dysentery	2nd Aug. 1872
4	"	"	Wm. Davis	Malarial neuralgia and Quotidian ague	(1st) 21st Aug. 1872. (2nd) 28th Jan. 1873.
5	"	"	C. Fitzgerald	Quotidian ague	(1st) 14th Sept. 1872. (2nd) 30th Aug. 1872.
6	"	"	J. Brydson	Quotidian ague	27th Sept. 1872
7	"	"	J. Cooper	Quotidian ague	(1st) 13th Nov. 1872. (2nd) 22nd Oct. 1872.
8	"	"	G. Bridgman	Irregular ague	(1st) 13th Nov. 1872. (2nd) 28th Jan. 1873.
9	"	"	Thos. Wallin	Quotidian ague	28th Nov. 1872
10	"	"	J. Williams	Quotidian ague	(1st) 12th Dec. 1872. (2nd) 13th Jan. 1873.
11	"	"	H. Bevington	Quotidian ague	(1st) 18th Dec. 1872. (2nd) 28th Dec. 1872 (3rd) 31st Jan. 1873.
12	Sgt.	"	Ed. Shemeld	Quotidian ague	27th Jan. 1873
13	"	"	A. Crothers	Quotidian ague	5th Feb. 1873

fever, &c., by the subcutaneous injection of Quinine. By Assist-
Sherwood Foresters.

Strength and form of solution, and quantity injected.	Results and Remarks.
Quinine Sulph. gr. x ... Acid. Sulph. ℥ 8½ ... Aq. Distill. ℥ xl ... Min. VI. injected ...	This was a severe case in which the debility and paler were strongly marked; slight fever occurred on the 6th day after the first injection. The injection was repeated and he was discharged on the 13th August to duty. There has been no return of fever up to date of this paper, and the man now appears in per- fect health; no other treatment was used.
Solution ... Min. VI. of above ...	No return of fever up to date of this paper. He was discharged to duty on the 9th August. He was detained in Hospital on the 17th and 18th of August a small boil having formed in the axilla. This may not have been caused by the injection.
Solution ... Min. VI. of above ...	Discharged to duty on 7th August. There was no re- turn of fever. He was afterwards invalided to Rangoon for Dysentery.
Quinine Sulph. gr. x ... Acid. Hydr. dil. ℥ 8½ ... Aq. distill. in xl ... Min. VI. of above ...	Discharged on 27th August. Neuralgia and Ague having gradually disappeared. The Ague returned in January 1873. The injection was repeated on 28th January but fever continued, and he was given large doses of Quinine. He returned to duty on 12th February, there has been no return of fever up to date. In this case debility, and palor were strong- ly marked.
Solution ... Min. VI. of above ...	Duty 31st August. He returned on 13th September with Ague, the injection was repeated on 14th and he returned to duty on the 15th. There has been no return of fever up to date. The attacks of ague were severe.
Min. VI. of solution with Hydrochloric Acid ...	Duty 28th, no return of fever up to date.
Min. VI. of solution with Hydrochloric Acid ...	Duty 23rd October. Fever returned and the injection was repeated on the 13th November. No return of fever up to date.
Min. VI. of solution with Hydrochloric Acid each time ...	Fever returned on 26th November with debility. The injection was repeated on the 28th of January. He was admitted again with fever, and general debility. Discharged 4th February, no return of fever up to date. In this case debility was very severe, re- quiring Iron.
Min. VI. of solution with Hydrochloric Acid ...	Discharged on 3rd December. No return of fever up to date. Debility and palor well marked.
Min. VI. of above solution each time ...	Discharged on 23rd December. Fever returned on 10th January 1873, injection repeated on 13th, no return of fever up to date. This was a very severe case.

XXXIV.—Description of Dr. Macnamara's filter.

[We have much pleasure in publishing the following communication from Dr. Macnamara of Calcutta. Some few alterations have been made in the description he has given of the filter, in order to adapt it to the newest form of apparatus.

We may mention that the Superintendent of the Ulsoor water works at Bangalore estimates that he could make animal charcoal at that station at the rate of Rupees 40 a ton. Probably it could be manufactured in all the large stations at about the same rate. An old cannon, or similar tube, with a lid to fasten tightly over its mouth, and two small openings for the escape of gas and fatty matters would serve the purpose of a retort. Bones kept in this for about 24 hours at a red heat are converted into charcoal. Crushing and winnowing are all that is necessary to prepare it for the filter. The great advantage of Macnamara's filter appears to be that any one can take it to pieces and clean it as often as is necessary. Inability to do this is the great drawback of the Patent filters in this country.—

Ed. M. M. J.]

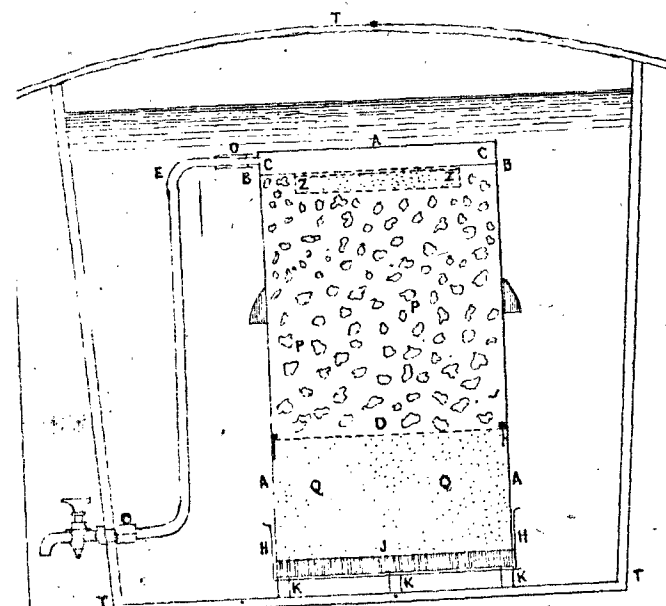
“Essentials in the construction of an efficient filter are as follows:—

The filtering medium must, in the first place, be good; and it is now pretty generally allowed that of all mediums well-burned animal charcoal is the one which exerts the greatest amount of chemical action on dissolved organic matter. As however animal charcoal is used for the purpose in the form of coarse powder, it is not so good a mechanical filter as fine sand, and in a well-constructed filter the water should first be mechanically purified by traversing a layer of sand before it reaches the charcoal, so that the energy of the charcoal may be concentrated on the removal of the dissolved organic matters. Animal charcoal after a time loses its purifying power, regaining it, however, after being well washed and exposed to the air; the construction of the filter should therefore be such that the animal charcoal can be removed, cleansed, and replaced, with ease.

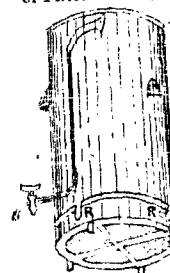
A good filter, moreover, should not get clogged, or if clogged, should permit of being readily set right without detriment to its purifying power.

The arrangement of the filter should be such that the

A SECTION OF THE FILTER (New Construction)



A Perspective view of Filter as set up



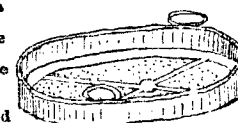
Perforated cap Z. Z.



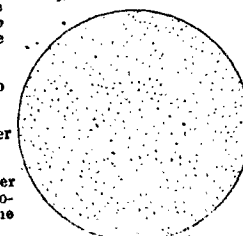
REFERENCES (NEW FILTER.)

- A A A Main zinc cylinder.
- B B Perforated diaphragm, perforated area, 7 inches in diameter.
- C C Vacant space above the diaphragm.
- D Inner tray for sand one inch deep.
- E Delivery tube.
- H H Outer tray of perforated bottom for the filter to rest on.
- J Perforated earthenware disc 1/4 inches thick, to rest immediately on the outer tray.
- K K K Feet of the filter.
- Z Z Cap of perforated zinc to contain sand.
- O O Position of union joints.
- P P Animal charcoal or other filtering material.
- Q Q Filtering sand.
- R R Clamps to hold the outer tray and keep it in position when turning the filter in the cistern.
- T T T Tub or cistern in which the filter is set up.

Tray D.



Earthen ware Disc J.



Scale, one eighth actual size

matters held in suspension in the water cannot possibly fall and collect upon the surface of the filtering medium.

The water should not be filtered into an open receptacle, in which it can become exposed to light, or to contamination from the air.

The filter should supply water quickly, and through a tap, and its construction should be simple, and not liable to get out of repair.

The filter should be constructed of either earthen-ware or zinc. The objection to earthen-ware is, that filters constructed of that material are heavy, clumsy, liable to break, and when broken very difficult to repair.

The above-mentioned points have been borne in mind in the arrangement of a filter, the construction of which will be understood by reference to the diagram, which is drawn to a scale of one-eighth the real dimensions. The filter consists of a stout cylindrical zinc vessel (AAA) 18 inches high by 10 inches in diameter; the vessel is closed at the upper end excepting where the delivery pipe (E) is attached. One inch from the upper end a zinc plate (BB) is soldered in; this plate is perforated centrally over a space 6 inches in diameter; under this perforated space fits a shallow cap made of perforated zinc; the cap is 7 inches in diameter and 1 inch deep. Eleven inches from the upper perforated plate, a wire of zinc is soldered into the interior of the vessel which gives support to a tray (D) one inch deep, that fits loosely into the cylinder, the bottom (when in place the top) of which is perforated to within one inch of its edge. A second tray 1½ inches in depth fits over the lower end of the cylinder, capable of being fastened to it by means of three slits which catch corresponding studs projecting from the cylinder. The bottom of this outer tray is open with the exception of two cross bars, visible in the "perspective view of Filter as set up." This serves to hold in place a perforated earthenware disc, ¾ of an inch in thickness, which fits loosely into the bottom of the main cylinder. The perforated zinc and earthenware disc contain 400 holes to the square inch. The filter is placed in a tub, one half of a large water cask or cistern, and stands upon four short zinc feet*

* One-half of a large water cask is very suitable for the purpose, or two rum or beer casks may be used. The casks should be connected by a pipe inserted 3 or 4 inches from their lower ends, and the filter is placed in either one of them. Each cask must have a mat or canvas cover. The double cistern is a convenient arrangement for use if a water contains much sedimentary

The delivery pipe of the filter is of brass 5-8ths of an inch in diameter; it is sufficiently long to allow of the tap, which is of corresponding size, being inserted into the side of the cistern at a level two inches above that of the bottom of the main cylinder. The delivery pipe is connected to the filter and to the tap by what are called gas union joints, each provided with a leathern washer. An iron key is needed to screw on the nuts of the joints. In filling the filter a wooden rammer is required; this is made from a circular piece of board, 1 inch thick, 5 inches in diameter, and provided with an upright handle, a foot in height. Our filters are now being made by a contractor in Fort William at Rupees 11½ each.

The filter is charged with *dry*, well-burnt, animal charcoal, and *dry*, well-washed sand. The charcoal must be sifted into two sizes, making use for the purpose of a wire sieve having 100 holes to the square inch, but the ordinary cane-sieve which is used by the Natives for sifting grain answers very well; the holes should be of such a size as to retain all pieces of charcoal which are above the size of a small pea. Subsequently, the fine charcoal should be winnowed, as the Natives winnow their grain, in order to free it from the charcoal dust; or the fine charcoal may be placed upon the sieve which is used to separate the fine sand, and that portion of it which passes through should be rejected.

The sand must be *thoroughly washed* by stirring it up in a vessel with frequent additions of fresh water, till the water which comes off is *quite clean*; it should then be dried by exposure to the sun, and subsequently sifted into two sizes, the tray of the filter may be used for the purpose, but a wire sieve which has 900 meshes to the square inch is more convenient for use.*

Now to fill the filter: an assistant should hold the main cylinder in a convenient position with the open mouth downwards, the operator then fills the small tray of perforated zinc with some of the carefully sifted coarse sand,

matter, for by stuffing a piece of fine sponge into the connecting pipe, and replenishing the filter with water, through the outer cistern, a second system of filtration is provided. The sponge must be removed once a week and thoroughly washed, first with cold and then with boiling water.

* If the filter has been received ready charged, the sand in the tray (DDD) should be taken out, re-sifted, and replaced before the filter is set up for use.

shaking the sand well into the tray, then supporting the tray in his right hand, he introduces it into the filter, and applies it so that it shall cover the perforated space in the diaphragm; he then places his left hand on the top of the filter, and keeping the tray firmly applied, inverts the cylinder. If this operation be neatly done, not a grain of sand will escape from the tray. The cylinder is next placed top downwards upon the ground, and the coarse charcoal is poured in till the space around the tray is filled, and more is added till the tray is covered to from half an inch to an inch in depth; by means of the rammer the charcoal is pressed firmly down. The finer charcoal is now poured in, the rammer being used, and the charcoal pressed firmly down as each successive inch of it is introduced, till the cylinder is filled up to within an inch of the wire ledge. The remaining space up to the level of the wire is then filled with coarse charcoal, which is pressed firmly down, its surface being made slightly convex, so as to press tightly against the bottom of the interior tray (DDD). Then the inner tray, surrounded with two or three turns of inch broad, well washed bandage cloths, to make it fit tightly, is pushed down upon the surface of the charcoal. Upon the perforated bottom of this tray coarse sand (in grains about the size of that of R. F. G. powder) must be spread to the depth of half an inch, and must be pressed firmly down with the rammer, and then fine sand is introduced with careful ramming on the addition of each half inch. Room is left for the perforated disc to be introduced, its edge having been first surrounded, like that of the tray, with two or three or more turns of bandage. The surface of the disc should project a *very little* about the level of the edge of a cylinder so that some little force may be required to fit down the outer cylinder, and turn it and fix it (like a bayonet on a musket) upon the studs. The filter is now inverted, the delivery pipe connected with the cylinder, and with the tap, and the arrangement is completed. The time occupied in filling the filter and fitting it into place, will be about fifteen minutes.

The delivery pipe in conjunction with the filter constitutes a syphon, and if air-tight, will draw the water down to the level of the tap. The syphon is brought into action originally, simply by filling the tub with water above the level of the top of the filter, keeping the tap open to allow of the escape of air while the water is being poured into

the tub. The suspended matters will gradually subside to the bottom, and any entering the filter will be stopped by the sand in the tray (DDD). *The tub should be fitted with a hole and plug that it may be readily emptied and the accumulated sediment removed. It should also be furnished with a coarse canvas or mat top to prevent the entrance of mosquitoes, and to keep out dust, &c.**

The water may not run freely for some hours after the filter has been set in action, it will continue to improve in quality for several days. The water which runs during the first few hours may have a slight taste derived from the charcoal, but this taste quickly ceases.†

It is well not to fill the tub with water to a higher level than three or four inches above the top of the filter.

If, after the filter has been working some time, it begins to deliver water slowly, the reason will probably be that the pores of the sand have become choked, the old sand must then be removed, and replaced by new. But though the sand may require to be changed, it may not be necessary to change the charcoal, and chemical analysis of the water the filter yields can alone decide whether it is still continuing to exert a proper degree of purifying influence.

The color of the water affords a rough yet in practice very useful test of the presence of organic matter, but to detect minute traces of color, a column of water at least a foot in depth should be examined. A cylindrical glass tube placed upon a piece of white paper answers the purpose well, and the column of water should be examined by looking down through it upon the white surface below. If the filter is acting well, not a trace of color should be detected. In this experiment a tall glass, a water jug, or a decanter may be used if a cylindrical glass tube is not obtainable. Should the water at any time acquire an earthy taste, that is a sign that the sand must be changed.

The sand will probably need to be changed every second month, and it would be well to make a point of having this done. But even if the sand is not changed so often, the charcoal, must be aerated every second month. To aerate

* During the hot season it may be well to enclose the cistern in a covering of khus-khus mat, kept constantly wet, perforated only where the tap of the filter projects.

† If, after the filter has been in work some hours, the water still runs very slowly, the charcoal has not been thoroughly winnowed, or too large a proportion of fine sand has been used.

the charcoal, remove the sand-tray (DDD), place the filter upside down, and let it remain six hours, that the water may drain out and air take its place.

The charge of charcoal will retain its purifying power for a twelvemonth if it be well cleansed twice during that time and aerated every second month. To clean the charcoal: remove it from the filter, wash it thoroughly, first with cold then with boiling water. Having done this, let it stand in an earthen vessel during three hours in a solution of permanganate of potassium. The solution is made by adding four ounces of the pharmacopœial solution of permanganate of potassium (Condy's fluid), and fifteen drops of strong sulphuric acid to a quart of water, sufficient of the solution must be used to cover the charcoal. Should the water entirely lose its pink color before the lapse of three hours, more of the acid permanganate solution must be added.* Finally, wash the charcoal with clean water, dry, sift, winnow, and replace it, making up any deficiency by the addition of fresh charcoal.† Probably a new charge of charcoal may be needed after the filter has been in use a twelvemonth, but no general rule can be laid down on this point, for the necessity for changing the charcoal will to a great extent depend upon the quality of the water in which the filter is used, upon the quantity drawn through the filter, and upon the care which has been taken to aerate and clean the charcoal.

If it is found that the water of any station corrodes the zinc, the metal must be protected by the application of two or three coatings of zinc-white paint, applied within and without, to all parts of the filter, excepting the perforated zinc, and the earthenware plate. The perforated diaphragm plate can be unsoldered and temporarily removed to allow of the upper compartment being painted. The perforated zinc may be protected by a varnish made of one part (by measure) of coal tar, dissolved in two parts of mineral naphtha. Kerosene will answer the purpose. The varnish must be sparingly applied, and by means of a brush with

* Dr. Parkes recommends that, after the treatment with permanganate of potassium, the charcoal should be washed with water acidulated with hydrochloric acid (one drachm of the acid to a gallon of water.)

† If sufficient animal charcoal is not at hand to make up the deficiency, wood charcoal may be used, but it must be remembered that the wood charcoal obtainable in the bazar can exercise no purifying action upon the water passing through it, and that it is therefore to be used only as a make-shift in the absence of animal charcoal.

stiff bristles; a little care in the application, aided, while the varnish is still liquid, by a rapid swing of the tray; or filter, through the air, will prevent closure of any of the perforations.

Other paints or varnishes may be tried and may be found preferable to the above. I would suggest a trial of a varnish made of equal measures of coal tar and mineral naphtha, for application in the place of the zinc-white paint.

The filter after it has been painted and varnished, must be exposed in the sun till all smell has gone off.

The main use of the coarse sand which is placed in the sand tray is to separate the fine sand from the perforated zinc, the perforation of which it might either choke or escape through. Pebbles will not serve in the place of the coarse sand and must not be used, as the fine sand would readily pass through their interstices. Moreover, so much of the sand would after a time pack amongst the pebbles that the remainder becoming loosened, would cease to filter efficiently. But a thoroughly efficient substitute for the coarse sand can be made from over-burnt brick (Jhamma). The brick must be pounded and then sieved, first in the tray of one of the filters, (or better in a sieve having meshes of a size rather larger than the perforations in the zinc tray) with a view to removing all the fine particles, and then in another sieve, having meshes of such a size as will remove all pieces which are larger than a swan shot. The brick sand when thus prepared must have a grain of about the size of R. F. G. powder.

ART. XXXV.—*Notes on an Epidemic of Dengue in the 3-60th Royal Rifles at Aden in the year 1872.* By Apothecary A. N. LAFOND, in Medical charge, Khandesh Bheel Corps, Dhurrungaon.

HAVING been present as Apothecary to the Battalion when a severe Epidemic of Dengue invaded the 3-60th Royal Rifles at Aden last year, I beg to offer, from memory, some remarks on it.

The Battalion, consisting of nearly 600 including officers and men (Surgeons A. G. Young and E. Wade) was chiefly composed of old soldiers, and is as fine a body of men as one would wish to see after 14 years' service in India and Burmah;

arrived in Aden in the early part of December 1871 from Bel-lary viâ Bombay, and was quartered in three different positions *i.e.*, the Head Quarters and 4 Companies at Camp Aden, a natural fortress formed by a range of hills of volcanic origin, devoid of almost all vegetation, and only open to the sea at its Eastern and partially at its South-eastern boundary. The ground in this position is generally low, and is supposed to be the crater of an extinct volcano.

Two companies were quartered at the Isthmus position, distant about a mile and a half from Camp, (the last position), and also surrounded by a range of barren hills. This position is strongly fortified, being justly considered the key of Aden, as it communicates with the mainland of Arabia by a narrow strip of land.

The third position is Steamer point, distant five miles from Camp, entirely open to the sea breeze and, as its name implies, forms the harbour of Aden, where numerous vessels of all description and nationalities call. Two companies were quartered in this position, the healthiest of all, as every hill is made a vantage ground, and occupied by numerous bungalows and barracks.

The disease first showed itself in those quartered in Camp in the month of April, when the summer heat, peculiar to Aden, was being initiated, and within a few days the Hospital was full, so much so, that considerable overcrowding took place. The disease continued to prevail until September, the severer cases occurring in the five months from April to August inclusive, when the direct summer heat and reflection from the surrounding rocks were simply unendurable. In the Isthmus position the disease did not show itself until later in the season, and the cases were not so numerous as in Camp. Those quartered at Steamer point from favorable hygienic conditions had an almost complete immunity from the disease until they arrived at Head Quarters in Camp, in course of relief. The system of relief in force of the declinents, being carried out every two months.

Out of a total strength of nearly 600 more than 400 were attacked, not including women and children who were also proportionately attacked and suffered considerably. A large number of cases were severe, owing, I doubt not, to the peculiar and excessive heat that prevails in Aden; the summer extends from April to September, and there is no rainy season, a heavy fall of rain for a day or two, in two or three years is a perfect god-send.

As drinking water is a precious liquid in Aden, and when rain falls it is carefully received and stored in wells and reservoirs specially constructed for the purpose at considerable outlay. It is not to be wondered at, that under such circumstances, that the characteristic symptoms of the disease were severe, more or less. In all the severe cases the heat of skin was excessive, dry and pungent, the headache was always severe with pain in the eyeballs, and intolerance to light, a feeling of stupor and drowsiness, want of sleep, the pulse was small, feeble and frequent, though, in some instances, it was full and rapid, the tongue red, but at times coated with a brownish fur; in some of the cases there was partial delirium and an inclination to coma; in every instance there was complete loss of appetite, and though thirst was present, as a rule, it was not excessive. Nausea, vomiting, or diarrhoea were not a common occurrence; but if anything the bowels were obstinately constipated, the urine free, and often high-colored. The severe and acute pain in the back and in the extremities peculiar to this disease, was intolerable, the slightest movement drawing forth a moan or a scream particularly in women and children; in some cases there was swelling of the articular joints, particularly the knees, hands and feet; cramps of the chest and abdomen or any pain in these parts were not present. The rash, also peculiar to the disease, was not present in all cases; in some, a mere reddish patch appeared, chiefly about the chest, abdomen, and back, and quickly disappeared, and in some of the cases the whole body became florid and covered with a closely packed measly eruption, and marks of its induction was perceptible for months afterwards, particularly about the extremities; complete desquamation occurred in two infants under a week old, a general peeling off of the epidermis, leaving an angry inflamed surface, distressing to look at. The little ones suffered much; one died from shock and exhaustion, and the other recovered from the free application of Carbolic Acid and oil, and the parents of the child that did well, in order to note the event in the infant's life, have named the children "Dengue."

The greatest danger during the intensity of the invasion was complication with insolation, the parallelism, or transition from dengue with its active symptoms to sun-stroke was easy, and well marked, congestion of the brain, but more frequently of the lungs was observed, coming on

suddenly and without any previous warning. Under these circumstances the men were carefully watched and frequent visits paid.

In the ordinary cases the most prominent symptoms, such as heat of skin, head-ache, &c., were subdued about the third or fourth day, but in the severer cases, prolonged and active treatment was necessary. Relapses of the disease were not of frequent occurrence, and when they did occur, they were milder than the first attack. Like Small-pox, it no doubt, protects a person from a second attack.

The common and frequent sequelæ of dengue is the persistent pain, and at times the swelling of the joints, particularly of the lower extremities, long after apparent recovery interfering much with free and easy locomotion, causing the men to creep along. In other cases they could not walk unaided for weeks after convalescence, in fact, the convalescent list for months together was larger than the numbers in hospital, and the hospital was quite full. In some of the convalescents there was a peculiar trembling and jerking gait, as if the man would fall at any moment; in one well marked case, the gait was like that in Locomotor Ataxy, but the man recovered, and gained the perfect use of his limbs after prolonged treatment. In some few cases there was not only loss of motion, but there was also loss of sensation, particularly about the hands and feet. I had an attack of dengue twelve months ago, and still experience a feeling of numbness in my left hand and fore-arm, with pain and swelling in the right foot, which is increased by walking any distance.

For days and weeks subsequent to an attack of dengue there was great prostration in all cases, and complete loss of appetite, so much so, that cook boys and other hangers-on about the Barracks reaped a good harvest of soldiers' rations.

The other sequelæ of the disease I have seen were incontinence of urine, bleeding from the nose, and in one grave and serious case of a pregnant woman, vomiting and purging with alarming depression, were incessant. Relief was not obtained until abortion took place.

Dengue considered harmless by many, undoubtedly causes death under certain conditions; for instance, in little children and infants; it is a grave affair in people advanced in age, in the weakly and intemperate, and in those who neglect to seek timely medical assistance and in certain atmospheric conditions. About three men, one woman and a

child died from the disease in the Rifles, in all cases preceded by convulsions, sterterous breathing, and coma.

The treatment consisted of purgatives, chiefly the Compound Jalap Powder; diaphoretics in combination with large doses of the Acetate of Potash; cold douche and leeches were extensively used to relieve the head symptoms, and in some of the graver cases with a tendency to effusion on the brain, small doses of Calomel and James' Powder, and Bromide of Potassium were given; and the application of blisters to the scalp and nape of neck were the remedies that gave relief. Where pulmonary congestion was present diffusible stimulants were given freely and frequently, and the application of sinapisms, dry cupping and Turpentine stupes to the chest were found useful. To procure sleep the Chloral Hydrate was a valuable agent, Opium or Morphia were very rarely prescribed, the thirst was allayed by the free use of iced water, and iced Lemonade, (fortunately artificial ice to any extent can be obtained in Aden.) In the earlier stages of the disease, the diet chiefly consisted of milk, beef tea, and chicken broth, and the patients, in many instances, required a considerable amount of persuasion before they would take the simplest food, and some of the adult patients were so helpless that they could not take either medicines or food without help. After the mitigation of the acute febrile symptoms, Quinine in large doses was given to prevent relapses of the symptoms, and subsequently smaller doses with other vegetable tonics to bring back the loss of appetite, which was a matter of considerable difficulty. The disinclination for food in all stages of this disease is remarkable. Strychnia, the Bromide and Iodide of Potassium and galvanism were the means employed where loss of motion and sensation were present.

Remarks.—From the above, Dengue is undoubtedly fatal under certain conditions, but happily not to the extent as one would expect from the acute and apparently alarming nature of the symptoms peculiar to the disease, in its earlier stages. The disease is so liable to serious complications, requiring the greatest care and watchfulness on the part of the physician.

OURSELVES.

IN the number of this Journal published in November of last year, we laid before our readers the difficulties which we experienced in the conduct of this the only Medical Journal in this Presidency; and we then stated that the demise of this publication must ensue if helpers in the form of contributors and subscribers did not come to our support. We were encouraged by a few members of our Profession friendly to the progress of this Journal to continue the publication of this work for a time. We have fallen in with their wishes, and for the past six months we have struggled on against many adverse circumstances. We have regretted much that the material that has lately found its place in this Journal has not been of that nature which we could wish, but we know that our subscribers will overlook our shortcomings in this matter when they are informed that our contributors have been steadily decreasing in number. We have lacked contributors more than subscribers to this Journal, and it is from want of suitable pabulum that we are unwillingly compelled to bring this publication to a close. We have labored somewhat hard to maintain this work, but we are obliged to acknowledge ourselves unequal to carry it on for any longer period. We would take this opportunity to thank our well-wishers and contributors who have spared no trouble to aid us in a somewhat discouraging task.

PATRONAGE.

This is a hackneyed subject. And yet it has not been such with us. We have written nought about it till now that we are *in extremis*. Besides, for

all that has been said and written on the topic, the world has as yet profited but little. At least, we are forced to this conclusion by the frequent howls in public journals of the day against abuse of patronage. Far be it from us to assert or believe that these howls are always or altogether either more right or more just than they are manly or dignified. Too often they are the expression of the ire and malice of disappointed candidates for appointments which they hoped, but failed, to get. The ease with which now-a-days a man may air his grievances in public prints, and obtain the advocacy of the Fourth Estate, is a matter of notoriety. But it is not as well known, or remembered, that those who make appointments, are precluded from giving equal publicity to the reasons which sway them in the distribution of their favors. Still, it must be confessed that it sometimes baffles one's powers of discernment to discover any rational grounds for the exercise of patronage in certain cases. It is not our purpose to pillory before our readers any particular instance of jobbery. It is rather our wish to moot a few points on the general question of patronage, and insist on the necessity, universally acknowledged in theory but not equally acted-up to in practice, of its fair distribution.

* It is, of course, beyond our power to propound anything new on a subject so much and so often canvassed everywhere. "No man" says Sydney Smith, teaches* novelties and discoveries; the object of teaching* is, constantly to remind mankind of what mankind are constantly forgetting; not to supply the defect of human intelligence, but fortify the feebleness of human resolutions; to recall mankind from the by-paths where they turn, into that broad path of rectitude* which all know but few tread.

* We have taken the liberty of substituting these words for those used by the great reviewer.

These plain lessons the humblest * * * *
may teach, if they are honest, and the most powerful will ponder, if they are wise."

Let us suppose a place vacant. The patron, in whose gift it is, has first to consider if all who wish to obtain it are qualified to be candidates for it. Even candidature requires qualification by regulations, and any one lacking this qualification is necessarily excluded from becoming a candidate. A recent decision of the Secretary of State for India, regarding a well known appointment, has hit this blot in the exercise of patronage in that instance. That essential preliminary being settled, the question then arises,—who of the qualified candidates are fit for the particular appointment? Fitness for a situation, implies capacity for the efficient performance of its duties. And a man's antecedents will always furnish materials for correctly gauging his capacity. Subalterns who best understand the drill, economy, and discipline of a Company, will make the best Adjutants and Quarter Masters of their Regiments. Those who have most distinguished themselves on the Regimental Staff, will be found most efficient on the Staff of Divisions and the Army at large. Those most deeply experienced in the discharge of Regimental and Staff duties, may be expected to become the most brilliant Generals of Divisions. And the men most intimately and practically acquainted with the whole round of duties appertaining to Executive Officers must, *ceteris paribus*, prove themselves the best Administrative Officers. What Reason naturally suggests, Experience fully confirms and corroborates. So that no patron need be at a loss in determining the fitness of any number of men for the appointment he wishes to fill up. All candidates at or below the dead level of mediocrity in the performance of duties they have hitherto performed, should be at once eliminated from the ca-

talogue of those whom he would be justified in serving. Then, of those who rise above that level, he ought manifestly to select the men, proved by their previous service to be specially qualified for the particular appointment vacant. As a gardener, however excellent a horticulturist, could scarcely be expected to make a good *chef-de-cuisine*, one would as little expect to find a good Quarter Master qualified to become *per saltum* Military Secretary to Government, or an officer versed in accounts a good Judge Advocate General. Let the Quarter Master find preferment in that department of the General Staff to which his appointment naturally leads; and the good Military Accountant in the department of Audit. But to take either out of his proper sphere, and pitch-fork him into another, is not only a sure means of entailing dishonour and contumely on himself, but also of inflicting injury on the public service. So also to introduce an officer, who has had but a partial and very limited experience in Executive duties, into high Administrative office, is without question the best way of securing an imperfect and faulty performance of the duties pertaining to the latter. There may be no lack of zeal and busy industry on his part, together with earnest efforts to do his best, but, lacking the essential prerequisite of intimate acquaintance with the whole round of Executive work, his zeal, industry and earnestness are sure to be misdirected.

Having made up his mind who of the candidates are fit for the appointment he has to give away, and so precluded himself from the chance of appointing an unfit man, the patron has still another question to solve,—who is the fittest of the candidates before him? Clearly that officer most deserves advancement, who has already proved himself in the highest degree qualified for it. The most efficient Judge Advocate General has a right to be made Judge

Advocate General on the occurrence of a vacancy. The Civil Surgeon who has shown himself the most dexterous in his manipulations, and the most acute and correct in his diagnosis, as a Surgeon, is entitled to such an honour as the Surgical chair in a Medical College. The force of this claim was most justly allowed in the case of the present Professor of Surgery in our Madras Alma Mater.

It will be observed that we regard superior qualifications and surpassing merit as paramount titles to preferment. They should never be overborne by simple seniority. If they co-exist with seniority, their force is increased by this subsidiary claim, and of two candidates of equal merit and qualification the senior should certainly be preferred.

Many and strong have been the invectives hurled at *nepotism* in the distribution of patronage. If relationship to the donor of an appointment be permitted to over-ride every other consideration, unquestionably a job is perpetrated. But kinship should not be deemed a *disqualification*, and a patron cannot be justly blamed, if he gives an appointment to a relative, whose claims and qualifications are not surpassed by those of any other candidate.

One contingency, however, demands consideration. It is quite possible that there may be but one person qualified by regulations as a candidate for an appointment, and that one may want the mental qualities and departmental experience essentially requisite as qualifications for the appointment itself. Under such circumstances, it is clear that the Service should not suffer, and that the technical objection ought at once give place to the necessity that the duties of the appointment be efficiently performed. The right man must be put into the right place. And if in the ranks of those who may have become qualified technically by regulation for *candidature*, no one be qualified by personal ability and acquirements

for the vacancy, the whole list of candidates should be excluded, and a fit incumbent selected wherever he can be found. Regulations, under such circumstances, are much more honourable in the breach than the observance.

Would that these self-evident principles of action always guided those in authority! We expect fulfilment of the wish when we have colonized *Utopia*.

LOCK HOSPITALS IN THE MADRAS PRESIDENCY.

IN the number of this Journal published on the 1st February last, our readers may have noticed a review upon the Report on the working of the Lock Hospitals in this Presidency, and it might have been noticed that we took exception to a sentence regarding the influence which the seasons in this country are said to exert upon the increase of Venereal diseases. We could not agree with the opinion held by the Inspector-General on this point, and we have been kindly furnished with a series of charts which exhibit the rise and fall in the numbers admitted for treatment during the several months of the past few years. We regret that we are unable to reproduce these charts here, but we trust that an abstract made from these papers will prove sufficiently interesting to our readers.

The first chart is a synoptical view of the monthly admissions into all the Madras Lock Hospitals from the year 1863 to 1872 inclusive. We learn from this that the largest number admitted was in the month of May, and the smallest number in the month of February. This table can be of little value in attributing to season any influence in the production of this class of diseases, inasmuch as stations are here classed together which have very widely different climates.

Table No. 2 is that for Madras. There we find that in November—the beginning of our cold season,—the largest number of admissions was made, and the smallest in the month of August.

Table No. 3, that for Bangalore, shows August to be the month during which the largest number was admitted and September the smallest. The monsoon generally terminates in the month of August, and is followed by the close and muggy month of September.

Table No. 4.—Bellary. In this, a notoriously dry, hot station, we find venereal diseases to be more prevalent in May—the hottest month of the year. The month of December, a cold month at this station, shows the smallest number of admissions.

No. 5.—Trichinopoly: At this station, nearly similar to Bellary as far as climate is concerned, we find the greatest numbers admitted for treatment were in May and October, the former being a very hot month. The smallest numbers are said to have been admitted in June, also a hot month.

No. 6.—At Wellington, a hill station, we find the greatest number of admissions to have been in March, and the smallest in September, a month remarkable throughout this Presidency for the stillness and closeness of the atmosphere.

No. 7.—At Cannanore we find a remarkable contradiction. The greatest number viz.; 366 was admitted in November, a cool month of the year, but we also find that in April, a very warm month on the Western Coast, that 65 admissions were made, or a number equal to that in November.

No. 8.—The chart of St. Thomas' Mount shows that in September the greatest amount of these diseases was met with, and that in June the smallest number was registered.

No. 9.—At Seetabuldee we find the month of July to be that in which the largest numbers of

venereal cases were treated, and the smallest in the month of June.

No. 10.—At Kamptee we find that the largest number admitted into hospital was in May, and the smallest in October, the former being the hottest month in the year at this station, the latter being a moderately cool month.

No. 11.—In Secunderabad we find a similar state of things to that which, it would appear, holds at Kamptee. In May the largest number of admissions was made, and in December the smallest number.

If we group together, therefore, those stations which have similar or nearly similar climates, as for instance, Bellary, Trichinopoly, Kamptee, Secunderabad, Seetabuldee, we find that with the exception of Trichinopoly, the greatest number of cases of venereal diseases was admitted into the hospitals at those respective stations during the months of May and July. As regards the minimum of admissions there is a great variation, the greater portion, however, of these show that the smallest numbers were admitted during what may be regarded as the cooler months of the year.

Taking again Bangalore and Wellington respectively as representing the Hill stations, we find no uniformity in the greatest and smallest number of admissions. The month of September, in both instances, is that in which the smallest number has been admitted.

Grouping the stations of Madras, St. Thomas' Mount, and Cannanore, as those which stand between the former two classes of stations, we find more uniformity. The largest numbers were admitted in the cooler months, and the smallest in the hotter months of the year. These three stations, out of the eleven named, support the opinion expressed by the Inspector-General, as to the influence which season

exercises over the production of venereal diseases, viz., that they "are much more frequent in the cold weather of this country than at any other period of the year." After studying these charts, and comparing station with station, we regret that we are unable to endorse or agree in the opinion expressed by the Inspector-General on this subject.

IN MEMORIAM.

WILLIAM NATHAN CHIPPERFIELD.

BORN 22ND MAY 1822.

DIED 22ND MAY 1873.

—:O:—

THE ranks of the old Indian Medical Service are thinning but too rapidly. It was but the other day that we had to chronicle the loss of a good and earnest man in Ambrose Blacklock, and now the painful task devolves upon us of recording the passing away of one of his colleagues in the Medical College staff.

Mr. William Nathan Chipperfield came to India in the year 1855, and after a varied service in different parts of this Presidency and in Burmah, was selected in the year 1859 to fill the office of Garrison Assistant Surgeon, with which was conjoined the appointment of Professor of Anatomy and Physiology in the Medical College.

From 1859 to the time of his death Mr. Chipperfield was a distinguished member of the Presidency Medical Staff. Until the year 1866 he continued to discharge the duties of the Professorship of Anatomy and Physiology, but in the beginning of

1866, we think, he was appointed to act as Physician of the General Hospital, and Professor of Medicine and Clinical Medicine in the Medical College. These duties were performed for some time by Mr. Chipperfield, but on the reorganization of the salaries of the Medical Department in 1867, the Professorship of Medicine and the appointment of Physician to the General Hospital were combined with the Principalship of the Medical College, so that to carry out the instructions of the Government of India, Mr. Chipperfield and Dr. George Smith had to make an exchange of appointments, the former being nominally posted to the Eye Infirmary as Superintendent, but continuing to do the duty of Physician to the General Hospital, until 1868, when failing health, after an uninterrupted service of thirteen years, obliged him to apply for leave to Europe. On returning to India in May 1870, Mr. Chipperfield took up the duties of Superintendent of the Eye-Infirmary. In August of that year, he was appointed to act as Principal of the Medical College and Physician to the General Hospital with the attached duties during Dr. Smith's absence in Europe, and so continued until relieved by Dr. George Smith in August 1872, when he fell back on his permanent appointment as Superintendent of the Eye-Infirmary, and Professor of Physiology and Ophthalmic Medicine.

This brief summary will illustrate the busy and varied life of our late friend. From the year 1859 to 1873, he was largely engaged in the practical duties of medical education, and in that time has helped to mould the career of some hundreds of students who have passed out of the College. As a teacher, Mr. Chipperfield was clear, precise, and methodical; whatever subject he undertook to teach, he taught thoroughly, and up to the standard of the day. His clinical teaching in the wards of the

General Hospital was always instructive and eminently practical. His great characteristic was thoroughness in all that came to his hand to do.

It is not often that we find the qualifications united in one person, that make him excellent as an anatomist, a physiologist, a surgeon, and physician; but Mr. Chipperfield's early training for the profession was rather out of the common course, and we may briefly allude to it here, in explanation of his general excellence both in the scientific and practical branches of his profession.

He began his professional education by a five years' apprenticeship to an eminent firm of country practitioners, and this apprenticeship was not a mere nominal affair, as is mostly the case in the present day, but a real five years' work among the multifarious duties of a large country practice. On the completion of this long preliminary training, Mr. Chipperfield appears to have been unable to enter immediately for the lectures and practice of one of the medical schools, and he contracted an engagement with Messrs. Ficklin and Bumpsted of Cambridge, a firm of practitioners in large practice, to serve with them as an assistant. In this capacity, with an ample field of practical work around him, he remained the trusted friend and helper of his employers for a further period of five years. It was not until the year 1851 that Mr. Chipperfield was in a position to complete his medical education so as to qualify for a diploma. He entered at St. Thomas' Hospital, where his practical knowledge and zealous pursuit of scientific teaching, soon caused him to be looked upon as a distinguished man. In the various classes he carried everything before him. Thus in his first year he bore off a Medical scholarship, and prizes in Chemistry, Anatomy, and Midwifery.

In his *second* year, the prizes for Medicine, Surgery, Physiology, Descriptive Anatomy, Midwifery, Fo-

rensic Medicine, Pathology, Comparative Anatomy, and for the best essay read before the Physical Society. In his *third* year at St. Thomas, Mr. Chipperfield obtained the Cheselden medal, for excellence in Descriptive Anatomy, and Surgery, the gold medal for general proficiency, prizes for Medicine and Physiology, and the Clinical clerks' and Physical Society's prizes. Such a long list of honors is enough to take one's breath away in the mere recital, and they testify to the fact that he not only studied every branch of his profession, but that he did so in such a way as to attain more than average excellence in all subjects, and this peculiarity was one which distinguished our friend throughout his life. His "general proficiency" was always high, and no branch of his profession came amiss to him. After passing his examinations at the Royal College of Surgeons and Apothecaries, Hall, Mr. Chipperfield was appointed Resident Surgeon of the Royal Sea-Bathing Infirmary at Margate, which appointment he obtained solely in consequence of the high testimony borne to his merits by the medical staff of St. Thomas. One of the staff, the late Mr. South, interested himself in still furthering Mr. Chipperfield's interests, and succeeded in getting one of the Directors of the East India Company to place a nomination to an Assistant Surgeoncy in the East India Company in his hands, which appointment he offered to Mr. Chipperfield, who accepted it, at the same time resigning his post at the Sea Bathing Infirmary.

The Directors of the Royal Sea-Bathing Infirmary placed the following resolution on record in accepting Mr. Chipperfield's resignation:—

"Resolved that the Executive Committee, whilst congratulating Mr. Chipperfield on his appointment to the Honorable East India Company's service, feel it their duty to express their sense of

"the unwearied attention which he has devoted to the patients in the house, for the last eight months, and for his valuable services in general, and are most thankful to him for two full and excellent reports which he has made, and containing remarks and opinions worthy of the Court of Directors' profound consideration."

It will thus be seen that the secret of Mr. Chipperfield's high position in the estimation of his professional brethren and the public, was nothing more than that he brought with him a mind richly stored in the theory and practice of his profession. With many men the disappointments and discouragements of youth, have anything but a good effect in the formation of character, but with Chipperfield there can be no doubt that the long probationary career was a period of hard and methodical work, and that he then laid the foundation of that accurate knowledge of scientific subjects, which distinguished him throughout life.

As Editor and contributor to the *Madras Medical Journal*, we must say a few words of our lost friend. From the resuscitation of the Journal in 1860, to quite a recent period, Mr. Chipperfield had been a frequent contributor.

He was always ready with his pen, as in any other way to help a professional brother overburdened with work. The 9th Volume of the Journal published in 1866 bears Mr. Chipperfield's name as sole Editor, a position which he continued to hold until 1868. Amongst the original papers contributed by Mr. Chipperfield, were the following: *On the Anthelmintic effects of Santonine*, Vol. II.; *On certain Surgical applications and some minor points in Surgery*, (a valuable practical paper), Vol. V.; *On extrusion of the Bladder*, Vol. V.; *On the use of compound tincture of Benzoin, in chronic dysentery*, Vol. XI.; *On acute inversion of the uterus*, Vol.

XI.; *Report on cholera at the General Hospital, Madras*, Vol. XI.; besides numerous "cases" scattered through the earlier volumes.

As a reviewer Mr. Chipperfield appeared always at his best. His extensive reading and great practical knowledge enabled him to separate the chaff from the wheat, and to do justice to an author who had any vocation beyond that of mere book-making. We may refer to a review of his on Todd's *Clinical Lectures on acute diseases* in the first number of the Journal (1860) as an excellent specimen of his analytical and critical powers, but scarcely a number of the Journal appeared up to 1868, without a contribution from his pen. Writing was no labour to him, although the exigencies of an increasing practice gradually withdrew him from connection with the Journal. Mr. Chipperfield was admirably qualified for success in general practice. Besides a thorough knowledge of his profession he possessed in a marked degree the indescribable tact, manner and patient courtesy, which wins the confidence of the sick. When he began to break down in health early in 1868, he was enjoying a large and lucrative private practice. A return to Europe was deemed absolutely essential to his recovery, but while on furlough he was not idle. Every day he could spare, he attended the practice of the Ophthalmic Hospital in Moorfields, making himself familiar with the startling progress of Ophthalmology, to which branch of the profession his public duties would have to be directed on return to India. He came back to his work in May 1870, improved by the rest and change of clime and scene, and was soon in harness again, his old patients flocking around him. In 1871 he began to break down from overwork. He suffered from dyspnoea and palpitation, the symptoms of a weak and dilated heart. Subsequently albuminuria showed itself, but, notwith-

standing much pain and suffering, our friend continued to perform his public and private duties up to the day of his death. He was well aware of the nature of his disease and its possible consequences, and had arranged all his temporal affairs calmly and methodically, in anticipation of the end, but he clung to his work as a distraction from himself, and found his consolation in the utilization of the talents and skill God had committed to his charge, for the benefit of the suffering and afflicted. A few days before his death it became evident to his colleagues that his health was fast breaking. Two days before the fatal event it was determined, in consultation, that he should leave India, and it was hoped that he might be able to get away by the first steamer in June. In discussing the matter with an old friend his only regret seemed to be that of having no occupation. Work, he said, was a necessity of his nature, and the idea of being idle was most distressing to him. On the morning of the 22nd he saw some patients, and at breakfast seemed rather better than usual; soon after breakfast, he noticed a sudden loss of power on the right side of the body. His speech became confused and indistinct, and before his medical friends could reach him, he had lost the power of speech. Stertorous breathing and coma set in, and at 7 p. m. he breathed his last.

Thus (to use our lamented friend's own words in reference to the death of Dr. Todd) "in the prime of life, and in the midst of the arduous duties of our profession has passed away * * * a consummate adept in diagnosis, a faithful expounder of the mysteries of disease, a skilful physician and a warm hearted friend."

Such men are not so common amongst us that we can afford to lose them, without testifying to the value and importance of their work. We should be glad indeed to see the general feeling of regret at

the loss of so worthy a man, take tangible shape in the establishment of a Scholarship connected with the Educational Institution to which Mr. Chipperfield devoted the best years of his life. The example of one, who friendless and unaided, struggled successfully towards eminence in the profession of his choice, and who in private life commanded the esteem and admiration of all who knew him, is surely deserving of something more than a mere obituary notice. There must be many poor and friendless young men, in this country, who would gather from the life and career of Chipperfield, strength and perseverance to push on towards the goal which he had reached, and who might be helped materially on the way by the provision of a Scholarship bearing the name of our honored friend.

Mr. Chipperfield has left a widow and five children, with whom his brother medical officers sympathize most deeply in their great affliction. One son, we are glad to hear, will probably follow his father's footsteps in the choice of his profession, nor could he follow a better example of all that is noble and good than that afforded him in his late father's life.

MEDICAL MISCELLANY.

Capillary Punctures in the treatment of certain collections of blood and pus.

It was in the sederunt of the 6th August 1856 that M. Voilemier demonstrated that a great number of pathological collections, liquid and even semi-liquid, might, and ought to, be punctured, emptied and cured with instruments of very small calibre. All that the procedure had to recommend it to the patient and the operator was immediately appreciated. Thus cicatrices, which are indelible and too often veritable deformities on the neck, face and other parts exposed to view are avoided, as well as indicating scars of tumours and abscesses which inspired suspicions of their scrofulous origin. The operator is also less likely to wound a nervous branch or open a vessel of a certain calibre, especially when he has to reach a deeply situated cyst.

This communication, made for the first time by M. Voilemier to the Chirurgical Society, was at first received with hesitation; but since that time he has produced numerous and convincing observations confirmative of his practice—amongst other publications in his *Clinique Chirurgicale*, an octavo volume published in 1862.

Now-a-days these capillary punctures have become common among both Surgeons and Physicians, and the aspiratory syringe of different forms is applied to them as an auxiliary in many cases. Pleuritic effusions have been thus treated, and cured by this procedure, which has been repeated several times and always without fear. These capillary punctures have cured voluminous hernial tumours, irreducible by taxis on account of the gas which distends the sac. If care be taken not to penetrate the hernial sac, the gas is removed and the hernia reduced.

* * * * *

The first observation which suggested this operative measure to its author is very interesting. It occurred in the month of March 1855. A lady aged 40 years was upset by a hackney coach, one of the wheels of which passed over her left leg. Infiltrated blood ascended as high as the ham and descended as low as the inferior third of the leg, forming an oblong pouch. Compresses moistened with water, and a lightly compressing bandage, diminished rapidly the volume of the limb. There was absence of fever, but on the *twentieth day* pain supervened. On removal of the bandage, the injured surface being exposed to view, the skin was found hot, red, and the inflamed pouch

threatened to open through a portion of the skin which appeared gangrenous. An incision at this point might have led to grave accidents, discolorations &c. It was at this conjuncture that it occurred to M. Voillemier to introduce a medium-sized sewing needle, which penetrated without pain, and on its withdrawal was followed by a reddish liquid. He immediately made six punctures which completely emptied the sac, three tablespoonsful of blood having flowed away. A poultice was then applied.

The following morning patient when visited had not suffered. Her skin had returned to its normal color. The tumour reappeared, and four new punctures were made, giving issue to a fluid more and more serous and less abundant. The last were by a few drops only of sero-sanguineous fluid. On the thirty-second day after the accident and the twelfth after the first punctures, the cyst had disappeared and the patient returned cured into the country.—*Journal des Connaissances Médicales.*

Holmes, Greene, Fenwick, and Durham on the removal of Bronchocele by operation.

Operations for this purpose are still rare, and have hitherto been regarded as exceptional in their dangerous character, and beyond the range of every-day surgery. The following series of cases have especial elements of interest and instruction.

1. Mr. T. Holmes of London (*American Journal of Medical Sciences*, Jan. 1873) narrates 'A Case in which a Large Bronchocele was removed with Fatal Result.'

The patient, a married woman, sixty-five years of age, had been the subject of enlargement of the thyroid body for more than forty years. When first noticed, the tumour was about the size of a walnut. After having slowly increased until it had become as large as a good-sized pumpkin, it remained 'inert and chronic' during a period of about eighteen years. It then 'assumed a more cedematous character, and showed a fixed tendency to increase in bulk; it became more tense and painful almost daily.' Having attained an 'immense girth,' it burst, and discharged an enormous quantity of 'a streaky and glairy fluid, tinged here and there with blood.' The quantity discharged during the evening and following night was estimated as equal to two pailfuls. Suppuration of the great cyst which had thus burst ensued; and under this and the foster occasioned by it, the powers of the patient were gradually sinking, and death sooner or later was inevitable. At this stage, the case was brought under the notice of Mr. Holmes by Mr. Lynch of Sudbury in Suffolk. The patient was in an extreme state of anæmia and exhaustion. The tumour was very large, and hung down con-

siderably below her waist. Its base was as large round as a man's arm. It lay more to the right side than to the left, and the innominate artery could be felt extending as high as its lower edge, the subclavian lying over the pedicle for some distance. No arterial pulsation could be detected, beyond that of the great vessels of the neck. But the veins covering the tumour were very large. It could not be ascertained whether the tumour was at all separable from the trachea, nor could its inferior relations be made out on account of the tension of the parts. But there was neither dyspnoea nor dysphagia, nor had there ever been. Mr. Holmes came to the conclusion that the removal of the tumour was practicable, at any rate to such extent as to 'prevent death from the suppuration of so large a cavity;' and, in accordance with the wishes of the patient and her friends, he undertook the operation.

The method adopted was as follows. Appropriate incisions having been made round the lower part of the tumour, flaps of sufficient size to cover the surface to be exposed were dissected up. All large vessels seen were divided between two ligatures, and any that spirted were tied at once. The soft parts having been sufficiently dissected from the base of the large cyst, the pedicle was surrounded by the chain of an écraseur to check hæmorrhage, and the mass was then cut away with an amputating knife. The divided vessels having been secured, the écraseur is removed, and the remaining portion of the cyst, which was intimately connected with the trachea, was partly dissected off, a partly tied by double ligatures. The operation occupied about an hour, the patient being quietly under the influence of chloroform the whole time. Very little blood was lost; and the pulse was as good after the operation as before.

A comfortable night was passed, and milk and other fluids were swallowed without difficulty. Next morning considerable hæmorrhage occurred. In the afternoon, erysipelatous redness appeared over the throat. The pulse rapidly became weaker; unconsciousness supervened; and death ensued the following morning, about thirty-nine hours after the operation.

'The tumour removed weighed a little over seven pounds. It consisted of the single large cyst the walls of which were of considerable thickness, containing here and there nodules of calcareous matter, and a few small secondary cysts.'

Commenting upon this case Mr. Holmes says, and probably most surgeons of experience will agree with him: 'I could hardly express my own opinion on the subject in more appropriate or forcible words than those used by Dr. Greene in speaking of the most formidable of the cases on which he operated.*' "We had

* Art: in *American Journal of Medical Sciences*, for Jan. 1871, on 'Three Cases of Bronchocele successfully removed.' By W. WARREN GREENE, M.D., Professor of Surgery in the Medical School of Maine, &c.

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to decide whether an attempt at removal gave her a possible chance for life; for my rule of action is, when a certainty of death stands opposed to a possible chance of safety by operative procedure, to give the patient the chance, no matter how small it is, provided he or she make the choice, with a full understanding of the facts, and with no prompting by the surgeon."

This case may be regarded, in the words of Mr. Holmes, 'as adding one more to the conditions which may make it justifiable to attempt the extirpation of a bronchocele,' viz., that in which 'the suppuration caused by the bursting of the tumour' may be 'the motive for interference.'

II.* In a paper read before the Medico-Chirurgical Society of Montreal, and published in the *Canada Medical and Surgical Journal* for Nov. 1872, Dr. George E. Fenwick (Professor of Clinical Surgery in McGill University), discusses the different forms of bronchocele and the various methods of treatment from time to time advocated and adopted; and then proceeds to relate 'a case of fibro-cystic bronchocele,' in which he successfully removed the right half of the thyroid body.

The patient, a robust healthy looking young woman, twenty-one years of age, was admitted into the Montreal General Hospital with an enormous fibro-cystic tumour of the thyroid body. The tumour had begun to grow when she was three years of age, and had attained the size it presented when she was about seventeen, since which time it had remained stationary. The tumour was about 17½ inches in circumference, and consisted of a huge central mass and two lateral portions, which felt perfectly distinct. There was considerable arterial pulsation, and the veins looked large and tortuous.

The central mass was tapped. Two fluid ounces of bloody serum were drawn off, and two drachms of tincture of iodine were injected. Two other seeming cysts were also tapped, and a drachm of tincture of iodine was injected into each. After having recovered from an attack of iodism, which ensued, the patient left the hospital, but returned in a few days suffering from increased difficulty of breathing, and declaring that her life under existing circumstances was a burthen to her. It was therefore determined to remove the mass; and the operation was performed in accordance with the method recommended by Dr. Greene.†

An incision was made in the median line along the whole length of the tumour to the upper part of the sternum, at once reaching the tumour, and dividing what Greene terms its 'fascia

propria.' There was then no difficulty in enucleating the mass, which was rapidly turned out with the fingers. About the posterior edge the veins were large, spread out, and incorporated in the mass of the tumour. They 'seemed to tear like paper,' and the effusion of blood was sudden and enormous. This hæmorrhage having been controlled by ligatures, the superior and inferior thyroid arteries, which appeared small, were tied. The mass was found to extend in the interspace between the trachea and œsophagus, and the latter was exposed for about three inches of its extent. The pedicle when reached appeared adherent to the trachea, and was about as large as two fingers. A ligature was put round it, and the tumour was removed by the knife. No further hæmorrhage occurred. The edges of the wound were brought together by sutures. The tumour removed was composed of three distinct masses, the central one being a cyst holding about six ounces of fluid. Before this cyst was opened, the tumour weighed 2 lbs. 14 oz. The remainder of the tumour 'consisted almost entirely of hypertrophied gland-structure intermixed with fibroid tissue.' Great prostration, with restlessness and vomiting, immediately followed the operation; but the patient soon rallied and made a rapid recovery. Considerable suppuration, however, occurred, the wound filling up and closing by granulation. Slight secondary hæmorrhage followed the separation of the ligatures, but was easily controlled. The wound had entirely closed, and the patient left the hospital, between seven and eight weeks after the operation.—*The London Medical Record.*

Feltz on the origin of Leucocytes.

In a memoir published in 1870 (*Journal d'Anatomie et Physiologie*), the author concludes that the globules of pus which infiltrate the peritoneum do not proceed from the leucocytes of the blood which escape through the walls of the capillaries, nor from the epithelium of that membrane which desquamates at the end of a relatively short period; and that after their fall leucocytes may still be seen to be produced in the substance of the serous membrane. He now infers from further researches (of which the conclusions are stated in a note addressed to the Académie des Sciences, Feb. 17), that in the peritoneum, as in the cornea, the connective tissue which forms the web of the membrane is crossed by a network of canaliculi, the fusiform enlargements of which form what are called the *cellular elements of the connective tissue*, the *connective nuclei*, or *plasma-cells*. These networks consist normally of a simple organic matter (*protoplasma* of Remak-Schultze, &c.) and under irritation, the circulating blood being increased in amount and modified in its plasma, a parallel modification and augmentation of the protoplasma,

* The Reporter is indebted to Mr. Holmes for kindly furnishing him with the journals containing the full accounts of this and the following case. But abstracts of both are given in the *American Journal of Medical Sciences*, Jan. 1873, under heading 'Domestic Summary.'

† See Paper referred to in note above.

ensue, whence the considerable development of the network of interstitial canaliculi, and of the element styled *plasmatic*, and its organization into leucocytes. He thinks it not doubtful that this protoplasm becoming free, as well by a direct individualization or genesis, as by segmentation and gradual organization of the fusiform swellings, gives rise at once to the form of leucocytes. He hopes soon to be able to give irrefutable proofs of it in the pulmonary alveoli.—*The London Medical Record*.

Incineration.

The attention of our readers may be advantageously directed to the subject of incineration of the dead broached by Prof. Polli. He repeats some of the arguments that have been used against the process, but now-a-days, when sanitary science has made such advance, when every inch of ground almost has become of value—in a country such as Great Britain, where the population is out of proportion to the area of soil, and where the infection of water by the percolation of decaying animals, situated, it may be, even at a considerable distance, has been proved to occur frequently and to give rise to sickness in an intense degree, it really becomes a question of consideration as to how far burial in the earth is hygienically correct or convenient. Habit and the association of ideas have inured us to the practice of earth burial, so that it seems alarming even to discuss the possibility of such a method being displaced, yet the incineration process, could it be carried out so as not to hurt the sensibility of our nature when bidding adieu to the last vestiges of our fellow-creatures, offers certain advantages. By the present procedure we lay the body in the earth to resolve itself into its original elements, by the slow and (could we witness it) the revolting process of decomposition. We preserve no traces of the material once so loved and precious in our eyes; we rear monumental slabs, and commemorate the intensity of our feeling by inscriptions. Would it not be more reasonable to decompose the body by incineration, and retain in monumental urns, if so desired, the ashes of our friends and relatives? The question is one of increasing importance viewed from a hygienic and social point of view.—*The Medical Press*.

The Process of Embalming.

The Brunetti process for the preservation of the dead has recently been published in *La France Medicale*, and it consists of several processes:—

1. The circulatory system is cleared thoroughly out by washing with cold water till it issues quite clear from the body. This may occupy two to five hours.

2. Alcohol is injected so as to abstract as much water as possible. This occupies about a quarter of an hour.

3. Ether is then injected to abstract the fatty matters. This occupies two to ten hours.

4. A strong solution of tannin is then injected. This occupies for imbibition two to ten hours.

5. The body is then dried in a current of warm air passed over heated chloride of calcium. This may occupy two to five hours.

The body is then perfectly preserved and resists decay. The Italians exhibit specimens which are as hard as stone and retain the shape perfectly, and equal to the best wax models.

A more simple form of injection suited for anatomical purposes consists of

Glycerine	-	-	14 parts.
Soft sugar	-	-	2 "
Nitrate of potash	-	-	1 "

It is found that after saturation for some days in this solution the parts become comparatively indestructible and change neither in size nor figure.—*The Medical Press*.

Loss of Sensibility of the Skin in the Neighbourhood of Gunshot Wounds.

Having seen a considerable number of gunshot wounds in soft parts without injury of the nerves, and which had already cicatrized for a longer or shorter time, Dr. Berger makes the following interesting observations: Not only around the wound but often over the whole length of the limb there is a considerable loss of sensibility. In some cases not only the skin but also the mucous membranes, as the conjunctiva or the nasal membrane, &c., was affected. The tactile as well as the electro-cutaneous sensibility was diminished, the muscular sensibility has not been appreciably inflamed; the mobility of the injured parts has been slightly affected and the contractions more feeble by the galvanic current.

In one case of a soldier struck by a bayonet over the groins and testes, deafness was immediately produced on one side and remained permanently.—*The Medical Press*.

Toxicology and Forensic Medicine.

Johnston on the Antagonism between Opium and Belladonna.—During his residence in China, Dr. Johnston (*Hospital Reports*, Shanghai, March, 1872) has had great experience of opium poisoning and the ill effects of opium-eating. During the last seven years he has treated upwards of three hundred cases of opium.

poisoning. He first employed atropia in 1869. He employs it hypodermically in the severer cases, where the patient is profoundly comatose. In milder cases, emetics, the stomach pump, cold douche, and constant exercise are generally sufficient. It is in the worst cases that atropia displays its wonderful effects; for instance, where the pupils are firmly contracted to a pin's point and immoveable, the conjunctiva and the cornea insensible to touch; the face pale; the lips, eyelids, and nails livid; the pulse weak and irregular; the breathing slow and stertorous; the extremities cold. In such cases, he usually injects hypodermically half a grain of atropia. Within ten or twenty minutes the pupils begin slowly to dilate; and, after an hour or more, the face becomes flushed; the breathing soft, without stertor; and the pulse stronger. Within two hours the full effects of the drug (atropia) are manifest, viz., widely dilated pupils, flushed face, hot skin, tranquil slow breathing, diminished frequency and increased strength of pulse, followed by calm and tranquil sleep, from which the patient is easily wakened after three or four hours. If within two hours the first dose fail to dilate the pupils, flush the face, and render the breathing slow, steady, and tranquil, he repeats the injection. In cases where the coma is not profound, he first employs a quarter of a grain of atropia, repeating the dose if the first be insufficient. He says, 'I have observed very sudden and very unfavourable changes set in rapidly, even in the mildest cases of opium-poisoning. This has happened so frequently, that I have come to the conclusion that whenever there is contraction of the pupil and great drowsiness, after the evacuation of the contents of the stomach, it is always advisable to administer a small dose of atropia. I may remark, that in no instance have I seen any bad effects following the subcutaneous injection of atropia.'—*The London Medical Record*.

Poisonous Doses of Chloral.

The smallest dose which has produced poisoning is $2\frac{1}{2}$ scruples, while 460 grains have been taken without unpleasant consequences. The symptoms are diminished frequency of respiration, redness of the conjunctiva, contraction of the pupils, lividity of the lips, and falling of the jaw. The character of the pulse has not been found to be uniform. The treatment should consist in: (1), Removing the poisonous matter or diluting it by water, tea, coffee, or other fluids; and (2), Restoring respiration. Too much reliance must not be put upon so-called antidotes, such as strychnine, physostigmine, morphine, camphorated ether and ammonia. These remedies cannot always be trusted. Possibly transfusion of blood, which has been successful in cases of poisoning by chloroform, may also prove useful in these cases.—*Med. Chir. Rundschau*, Oct., 1871.

Diarrhœa in Teething.

In a clinical lecture "On the Primary Dentition of Children," by Francis Minot, M.D., Harvard (*Boston Medical and Surgical Journal*, January 2, 1873), in speaking of the diarrhœa complicating teething during hot weather, recommends the common chalk mixture with the addition of one-fourth part of tincture of kino, which increases its astringency, and also keeps it from turning sour in hot weather. If the diarrhœa be not checked by this mixture, one drop of laudanum may be added to a dose, but not oftener than three times a day, in children under two years old. Diarrhœa is most apt to attack children who are brought up on the bottle; hence, if the case be urgent and do not yield to treatment, a wet-nurse should be procured if possible. When this cannot be done, he would strongly recommend the method of preparing the milk with arrow-root, and gelatine, found in the treatise on "Diseases of Children," by Drs. Meigs and Pepper. Brandy is very useful to a teething child exhausted by diarrhœa, which should be given once in three or four hours, or oftener in urgent cases. The dose is ordinarily from five to twenty-five drops, given in milk; but if there be much prostration the physician need not fear to increase the amount.

Spraggia on a case of Transposed Viscera.

Dr. S. Spraggia relates (*Gazetta Clinica dello Spedale Civico di Palermo*, Jan. 1873) the case of a man named Giovanni Sparacio, a blacksmith, aged twenty-three, who came to hospital complaining of pulsation in the right mammary region. The only illness from which he had suffered was an attack of supraorbital neuralgia, four months previously, following intermittent fever. He was of middle age and robust make. The arterial pulsations in the neck were not very distinct, but more so on the right than on the left. The impulse of the heart could be seen and felt on the fifth right intercostal space, while nothing of the kind could be perceived in the left one. The left hypochondrium gave on percussion a dull sound over a space, the limits of which represented the boundaries of the liver. The right hypochondrium was resonant; and the spleen was felt on that side, apparently enlarged by about one half. The apex of the heart lay towards the right, with its left margin about $3\frac{1}{2}$ centimètres to the right of the sternum; its limits could be distinctly defined by percussion, and over them the sounds were distinctly audible. There was no functional disturbance.—*The Medical Record*.

On the use of Ergot of Rye in the Hæmoptysis of Phthisis.

By DR. ANSTIE.

BEFORE proceeding to the analysis of the therapeutic results apparently obtained in the series of cases which have been already detailed, I must complete the history of two cases, the later stages of which were accidentally omitted in the second instalment of this memoir.

The old woman whose earlier symptoms were related (as the seventh case in the first series, February *Practitioner*) came again under my care about two months after the arrest of the original hæmorrhage. Although the bleeding had not yet returned, she had been getting steadily weaker, was much harassed by cough, and had copious muco-purulent expectoration. She complained of total loss of appetite, and was emaciated and haggard. Percussion sounds were very unequal, patches of dulness being scattered over both lungs; the largest portion of decided consolidation was in the upper third of the left lung. Over the chest, generally, the presence of bronchitic moist sounds was sufficient to prevent any accurate auscultation; but in the upper part of the left lung it was possible to obtain pretty decided evidence of a cavern with softening walls. There could be no question, here, of a dilated bronchus surrounded by fibroid consolidation, since the whole of the peculiar physical signs at this part of the chest had developed themselves in less than two months; and the change in the patient's whole aspect showed that she was suffering under a fresh and much more serious disease than that which had troubled her chronically for many years. She was ordered cod-liver oil and tinct. ferri muriat. with chloral to procure sleep, as she suffered greatly from bad nights. The immediate effects were good; but unfortunately the weather became very trying, and a fresh aggravation of all the symptoms was observed. She now (eleven weeks after the cessation of the primary hæmorrhage) was again taken with hæmoptysis, but in a very different manner from that in which it formerly occurred. She coughed up large quantities of blood on four or five occasions, and was then admitted to the hospital in a state of great prostration. Gallic acid (as on the former occasion) was given freely, but without the least effect; after two days of this treatment she was steadily getting worse, with copious expectoration loaded with blood (prune-juice sputa). Digitalis was now administered, at first tentatively, and then in considerable doses (two drachms of the infusion *ter die*); but although it acted favourably in some respects—increasing the urine, which had been scanty and rather albuminous, and somewhat relieving the dyspnoea—it did not in the least diminish the hæmorrhage. Ergot was then given, in thirty-minim doses of

the liquid extract, every four hours; and to all appearance its effect was rapid and decided, for the hæmorrhage had almost disappeared twenty-six hours later. The old woman lingered on, without any considerable return of the bleeding, but steadily declining, with signs of rapid lung-destruction; for nearly a month longer, when she left the hospital, wishing to die at home.

The last case which requires notice is No. 5 of the first series (February *Practitioner*)—a young woman who had first developed symptoms of phthisis after typhoid fever. Her second period of attendance at the hospital was about two years and three months from the commencement of pulmonary symptoms; she had been slowly wasting and declining in strength. She applied on account of a return of hæmorrhage, which had occurred suddenly, in a large gush, after a violent fit of coughing, the day before her visit. She now coughed very frequently: the thin muco-purulent sputa were constantly bloody. As ergot had been so useful on previous occasions, it was now given (in forty-minim doses); and again it appeared to produce a speedy effect. Not only did the bleeding quickly cease, but the patient spoke of herself as feeling much stronger and better, and really looked so; although there were now abundant signs of softening in the right lung, and consolidation (with subcrepitant râles at the apex, posteriorly) of the left lung. The seeming general amendment was delusive; appetite and strength rapidly failed, and the end was evidently near when I lost sight of her, nearly two years and a half from the probable commencement of the pulmonary disease.

In striving to analyze the series of cases which I have recorded, so as to form a judicial opinion on the value of ergot as a hæmostatic in phthisical hæmoptysis, there are sundry necessary precautions which are obvious. It can scarcely be necessary to indicate the dangers of a *post hoc ergo propter hoc* conclusion, since hæmorrhage of every kind is notoriously apt to terminate spontaneously, in an apparently capricious manner. If my recorded cases be looked at carefully, however, it will be seen that none of them are of the more trivial kind; in fact, they were selected for the very reason of their being marked and severe. These fourteen examples of severe hæmoptysis were drawn from a very large field. My out-patient practice at Westminster Hospital has averaged more than eighty new cases per week (not unfrequently there are from fifty to sixty new cases on the heavier of my two days), so that in three years not less than 12,480 patients pass under treatment: of course the number must be greatly reduced (possibly as much as one-third, or even one-half) by instances in which the same person would come twice or even three times under treatment during the three years, but still it is impossible to suppose that less than 6,000 separate individuals were seen by me during that time. Of these, the

larger number were trivial cases—catarrh, dyspepsia, &c., but there is also a large residuum of serious cases, chiefly nervous diseases and phthisis. Of the latter, in so poor a population as that which surrounds the Westminster Hospital, there is a considerable quantity; and the severer cases (or rather the more alarming, especially those with hæmoptysis) naturally gravitate towards the Hospital. Thus the fourteen cases in which hæmoptysis was deemed sufficiently severe and intractable to afford a worthy test of the efficiency of ergot as a hæmostatis, were selected from a much larger number in which there was more or less blood-spitting. [I should correct myself by saying that only eleven of them were taken from the hospital practice, the other three having been private patients.] Moreover, among the fourteen cases (or rather sixteen, including the two which were treated for hæmorrhage both of the early and the later stages), there are not less than six instances in which the use of ergot was rapidly followed by cessation of bleeding after other (usually reputed powerful) styptics had failed to arrest the hæmorrhage; besides several others in which ergot was tried alone and with success. Taking these results along with the fact that the ergot distinctly failed in only three cases, I think we may fairly conclude, in the first place, that there was real therapeutic action, and not mere coincidence, in the successful cases.

Granting that there was a positive hæmostatic action of the ergot, is the amount of success great? Here we are encountered by the main stumbling-block in therapeutic inquiries—the impossibility of applying experiments to sufficient numbers of fairly comparable cases. There is probably no subject in practical medicine on which more divergent opinions are held than the question how far the so-called styptics, internally administered, produce a real effect in checking hæmorrhage. Some persons are perfectly confident of success when they administer such drugs as gallic acid or acetate of lead; and I have heard a physician to a well-known London hospital describe to his class, with surprising minuteness, the machinery by which the latter drug does, and always “must,” arrest intestinal hæmorrhage in enteric fever. There are others, however, who think very differently. I well remember the shock which it gave me, some years ago, to learn—I forget whether from his writings, or in private conversation with him—that the late Dr. Brinton was profoundly sceptical as to any real styptic power of such drugs as gallic acid and acetate of lead, when given internally. And not long since, an esteemed colleague of my own informed me that on the whole he had ceased to place faith in such remedies for hæmoptysis, and was in the habit of relying mostly upon digitalis, which he believed operated mainly by regulating the circulation.

I very early passed from the stage of implicit belief in styptics to a total distrust of them (as internally administered); but for some years past I have seen reason to think that their power is real, though far more limited than many persons have supposed it to be. That the action of the more commonly employed internal hæmostatics is to the last degree uncertain (even though in a moderate number of cases they may apparently act with great promptitude and effect), I think no one of large experience will deny, unless he has entered upon the enquiry with the determination to see none but successful results. With regard to some remedies which (known to be *locally* more or less styptic) are continually given internally for hæmorrhage, by the merest routine, he will quickly make up his mind. He will conclude that, for certain, the mineral acids, in any practicable internal doses, are not directly hæmostatic at all, and are not in the least reliable when the momentary object is to stop the bleeding. And probably he will in the end conclude that, putting aside the case of digitalis, which is peculiar, there remain, among the ordinarily reputed remedies for hæmoptysis, only (1) gallic acid, (2) acetate of lead, (3) either of these combined with opium, (4) alum, (5) turpentine, and (6) sesquichloride of iron, which yield anything like decisive results, while each of them in turn is very apt to fail. Certainly he would conclude, without the least hesitation, that we are ignorant of any but the vaguest clues to the discriminative use of internal styptics; yet there must be serious differences in the applicability of different remedies to different forms of hæmorrhage. To take a very striking example, what do we know of the reason for the difference between the magical styptic action of turpentine in hæmophilia,* and even in purely symptomatic purpura, and its capricious (though occasionally good) results in ordinary phthisical hæmoptysis?

On the other hand, there is, in the case of ergot, good *à priori* ground for supposing that it would prove to be a more universally applicable remedy in hæmoptysis than any other that has been named. Proofs of its general physiological action have accumulated on all sides of late years, and we know with certainty that, besides its familiar action on the uterine walls, it contracts the smaller arteries, and slows the heart. In these respects it would seem likely to check pulmonary hæmorrhage in the same way as digitalis does, though probably with more vigour, in both these directions, than would be shown by any safe and practicable doses of digitalis. This leads me to those special remarks on digitalis as a pulmonary hæmostatic which I

* I am obliged to my friend Mr. Hannay, late house-surgeon to Westminster Hospital, for recently calling my attention to this subject of the styptic action of turpentine in purpura. I had certainly forgotten, if I ever knew, the remarkable character of the effect.

had reserved till now. I think that any person who has patiently tried digitalis, both in ordinary hæmoptysis and also in pneumonia according to the Germau system, will readily acknowledge its very decided power of diminishing the blood in the sputa in both diseases: and I believe that a careful observer would convince himself that this occurs in direct proportion to the degree in which the heart's action is slowed, *provided it continues regular*. But whatever may be the ultimate conclusion as to the working of digitalis in pneumonia, it certainly is an inconvenient agent to rely upon in the suppression of hæmoptysis, for though very powerful *ad hoc* it produces in an inconveniently large number of cases a temporary fluctuation in the force and regularity of the heart's pulsations. This is very disquieting and sometimes alarming to the patient, and is likely to more than neutralize any direct benefits from the drug. Now with regard to ergot, I can affirm with great confidence that there is nothing to be apprehended. I commenced the use of this drug, for a variety of purposes, several years ago, and have probably given it as largely and continuously as any one has done. Ever since 1868 (on the suggestion of Mr. Woakes) I have been in the habit of giving ergot in neuralgia and other nervous complaints, and in order to test the range of its powers have often administered it in large doses for many weeks together. Even the continuance of forty-minim doses thrice daily for six weeks or two months has never produced any untoward symptom beyond a general nervous depression, not greater than that which often follows a long course of large doses of bromide of potassium. I need not say that any employment of ergot for hæmoptysis would involve only much briefer periods than this: for unless it pretty quickly produced a decided impression we should have no reason to expect good from its continuance: and after hæmorrhage has ceased it is probably only necessary to continue the ergot, in diminishing doses, for a few days longer.

I think we have now established the facts (a) of the direct action of ergot in the cases which I have recorded; (b) of its superiority in several of these cases to other styptics that had been tried; (c) the probability, from physiological analogies, that ergot would act more universally as a checker of hæmoptysis than the routine remedies with which we are familiar; (d) also that it is perfectly safe for the purpose in view, and in this respect is superior to digitalis, which otherwise resembles it a good deal. Some further illustrations of its special activity should however be given: and I quote, in the first place, from my own cases. Case II. in series *U* (advanced phthisis with rapid tissue destruction) was one of the most ugly and threatening cases of hæmoptysis that I ever saw; in addition to the formidable symptoms already mentioned, there was a history of

an epistaxis, some twelve years before, which proved alarmingly uncontrollable, and very nearly killed the patient: the fact that such an immediate impression was produced by the ergot in this case has a great significance. Case I. of series *B* is also very convincing: the alcoholic type of phthisis, when it follows the course described, is a disease in which hæmorrhage, if it occurs at all, is often very violent and intractable, and here it was plain that the direct action of the ergot upon the heart and upon the small arteries was both prompt and efficacious.

One of the best proofs of the reality of a supposed action of any drug is afforded when the effects, which were comparatively slight or dubious after the administration of the rougher preparations, became more marked and apparent in proportion as fever and more concentrated preparations come to be employed in practice. Now this is precisely the history of ergot as a remedy for hæmorrhage. Used at first in the form of infusion or tincture, it was only moderately efficacious; and indeed, so late as 1870, Nothnagel* expressly states that which I have been endeavouring to show can no longer be considered true, viz., that ergot is not superior to acetate of lead, or sesquichloride of iron, in hæmoptysis. But the liquid extract, given by the stomach, has given even better and more certain results, not only in my hands but in those of several others. And the hypodermic injection of Bonjean's ergotin (which I have used for other purposes, but not for hæmoptysis) has given still more excellent promise, more especially in the hands of Drasche, of Jamieson, and of Dr. Currie Ritchie of Manchester: the latter gentleman published an excellent paper on the subject in the *Practitioner* for December 1871.

Meantime there have sprung up other collateral illustrations of the effectiveness of ergot in producing contraction of the arterioles and moderating the heart's action: of which the most remarkable is Langenbeck's discovery of the therapeutic use of ergotine injections in aneurism. It is true that this latter subject is as yet not at all completely developed; but enough has been proved to strengthen materially the general mass of evidence in favour of the belief that ergot acts precisely in the manner in which we should desire a pulmonary hæmostatic to act. I of course do not say that we shall not possibly discover a yet more useful remedy for hæmoptysis, but at present we probably possess none equal to it. Over and above the important resource which ergot seems to afford when hæmorrhage is actually dangerous in amount, and when such remedies as gallic acid, acetate of lead, or muriate of iron have failed, I think that ergot is likely to be the most appropriate of all hæmostatics for the hæmorrhage of early phthisis, where it may be hoped that the

* *Arzneimittellehre*. Berlin: Hirschwald.

lung has as yet undergone very little structural change. The prompt suppression of all oozing into the air-cells which, in view of the danger of phthisis *ab hæmoptoe*, it is so important to effect, can probably be in no way so effectually accomplished as by the employment of ergot.

Nor do I prefer the gastric administration, although in the cases recorded I employed it. For getting the best results I can scarcely doubt that the hypodermic injection of ergotine is a decidedly superior method. But I was personally anxious to see whether the remedy would prove practically effective when given in a form which is much less troublesome, and consequently more adapted to every-day practice, than the hypodermic injection would be. I hope I have shown that it is effective in a very encouraging degree, and that the profession will soon come to recognize the preferability of a direct recourse to its use in hæmoptysis, instead of the routine employment of a series of astringent remedies which are considerably less uniform in their action.—*The Practitioner*.

Chronic Alcoholism.

An important debate on this subject took place at a recent meeting of the Medical Society of the College of Physicians in Dublin, Dr. Fitzpatrick in the chair. An abstract of the debate was published in the *Medical Press*, and the last number of the *Dublin Medical Journal* contains the transactions of the Society, from which we take the account of the debate on alcoholism. It was opened by the following paper on the Semeiology of Chronic Alcoholism.

BY ALFRED H. MCCLINTOCK, M. D.

In bringing under the notice of the Medical Society the great subject of alcoholism, I wish at the outset to dispel any idea that I am about to submit an elaborate compilation or original essay. To do either the one or the other is quite out of my power. All I aim at is to look at it from one point of view—to study one of its aspects which, I think, possesses a high degree of practical importance.

It is matter of notoriety that the immoderate use of diffusible stimulants has greatly increased of late years among classes whose education and social condition should have been sufficient preservatives against this destructive vice. It is well known to physicians that alcoholism is to be met with among the occupants of drawing-rooms as well as the frequenters of tap-rooms. What has so widely spread this pernicious habit among the present generation, it would be difficult to say. Probably more causes than one have contributed to bring it about. I cannot help thinking that the intense strain put on the intellectual faculties

in every profession, trade, and pursuit, the mental competition of these days, must create or foster an appetite for diffusible stimulants. Nervous exhaustion craves for the alcoholic stimulus; whereas physical or muscular exhaustion will more eagerly demand solid aliment. Furthermore, to be candid, I must own to a feeling that our own Profession is not wholly free of blame in this matter. I know well I am here trenching on delicate ground, but, "*Amicus Plato, amicus Socrates, magis amica veritas*," and I strongly suspect that the modern treatment of disease by the free use of stimulants, though fulfilling an important therapeutic indication, has occasionally developed a morbid habit or taste, eventuating in moral and physical disease of an incurable kind. I would qualify this, however, by adding that the declaration of inebriates themselves on this point is of no value whatever, as they are notoriously untruthful, and are always but too glad to throw the blame of their evil habit on the physician or surgeon.

If there be any foundation for the above suspicion—and nothing would give me more satisfaction than that it should be disproved—it certainly increases the responsibility resting on us to discover this pernicious habit whenever we can, and to use our utmost endeavours to eradicate it.

But, even in the absence of any moral considerations of this kind, a regard for our professional character and for the credit of our art should stimulate us to acquire a knowledge of all the symptoms which may attend, in varying degrees, on the habit in question, so as to be able to distinguish them from the effects of idiopathic disease, and to trace them to their true source.

The term alcoholism was first used by Magnus Huss, of Stockholm, about the year 1852, and has been adopted by succeeding writers, French and English; and perhaps no better term could be employed to express the pathological effects of over-indulgence in the use of diffusible stimulants. He describes two forms of alcoholism, viz, the acute and the chronic. Of the former (*i. e.*, acute alcoholism) we have the best and highest example in delirium tremens: but every case of drunkenness should fall, I think, under the same head, and, properly speaking, is an instance of acute alcoholism.

Chronic alcoholism, according to the sense in which Huss, Marcet, and other writers use the term, expresses a train of symptoms belonging to the nervous system, which symptoms may continue or be developed long after the pernicious habit has been relinquished. Now, I think it will be freely admitted that a large class of cases are met with of deranged *organic* functions, which derangements are the direct result of the abuse of spirits in some form or other.

These cases constitute a numerous category, and it is chiefly of their symptoms I attempt to give a brief description.

The task, then, I have proposed to myself in this paper is comparatively a very narrow one: briefly to pass in review the effects which are produced on the bodily functions by intemperance; in other words, the symptoms and disturbances which it gives rise to, and by which the baneful vice may be suspected or discovered. To form a correct opinion on this point is assuredly of much importance, as failing in this we may commit serious errors of diagnosis and prognosis, and expose ourselves and our art to ridicule and contempt. In every instance coming before us we need to see well that the grounds of our diagnosis are sure, before breathing a suspicion that would tend to criminate the patient; and even when fully confident in the correctness of our opinion, the utmost tact, delicacy, and circumspection are often requisite in the mode of communicating it to patients or their friends. It must be remembered that all these patients, with scarcely one exception, conceal how much they drink over and above the limit of moderation, and will deny in the most emphatic and persistent manner that the quantity is at all inordinate. Herein lies the source of our greatest difficulty in dealing with them. The utter disregard of truth evinced by most of them when questioned about their ruling vice, is one of the most striking and melancholy features of moral depravity which they present. I have seen a lady of education and refinement, and the mother of a large family, protest most solemnly that there was not the slightest foundation for my suspicion, and even when confronted with the half-finished bottle of brandy, brought forth from its hiding place, and by the messenger she had sent to purchase it, still with unblushing assurance did she resist the direct and circumstantial evidence which proved her a liar of the deepest dye!

To my mind the demoralizing, debasing effects of intemperance cannot be more strongly shown than by this extinction of the principle of truthfulness—a principle which lies at the foundation of all morality. On this point Dr. Skae, in his essay on *Dipsomania* (*Winslow's Journal*, Vol. xi.), thus graphically expresses himself:—

"Such persons are singularly mendacious. They will resort to every possible device to procure stimulants, to excuse their conduct, to deceive their friends and medical attendant, and will display an ingenuity and fertility in deceit which is truly marvellous." . . . "They will evade the most vigilant surveillance, and tell the most deliberate falsehoods in their attempts to deceive, solemnly appealing to God for their truth. When shut off from the ordinary sources of stimulation they will sometimes resort to almost anything in order to relieve their craving. I have known a young and delicate lady after being prevented getting wine or spirits, and deprived of red

lavender, lavender water, and eau de Cologne, take creosote, vinegar, vitriol, and tobacco."

In an inquiry like the present we need not stop to consider whether, or how far, alcoholism is the result of a vice or of a disease, though I admit the importance of such a distinction in a medico-legal point of view, as well as in legislating for inebriates.

With regard to the effects of spirituous liquors on the health and constitution, we might divide all drinkers into three great classes:—

1st. Those who partake of them in moderation, and who are benefited by their use. Thus, Dr. Thomas King Chambers, in summing up the results of some carefully conducted experiments, speaks on this wise:—"In short, the circumstances seem to indicate that a moderate dose of alcohol acts by temporarily augmenting the digestive power of the stomach, helping it to appropriate more thoroughly the food."

The 2nd class are those who partake of alcoholic liquors in larger quantity and for a lengthened period, and who, consequently, may be said to be intemperate, although they do not, perhaps, at any one time, drink to such excess as to lay themselves open to the charge of being "drunk and incapable," or "drunk and disorderly," or, indeed, of being drunk at all, in the true sense of the word. They are guilty of excess by the total quantity consumed in the twenty-four hours, and not by that taken on any one occasion. To this class of drinkers, I believe, belong a large proportion of the cases of chronic alcoholism, met with in the upper ranks of society, and especially among females of this rank.

Furthermore, it would seem demonstrable that the intemperance of the upper classes in the present day consists very much in the oft-repeated ingestion of some kind of alcoholic stimulants—whether it be wine, spirits, or the favourite B. S. (Brandy and Soda). In this respect the practice of our contemporaries differs much from that of our forefathers, who confined their potations to after dinner, and, as a rule, took little or nothing before that time. Which system inflicts more injury on the health is a question that might admit of considerable discussion, and though it does not properly fall within the scope of this paper, I may just remark, *en passant*, that the testimony of Dr. King Chambers, who has been at some pains to investigate the actions of alcohol upon the economy, goes far to show that small and frequently repeated stimulation is much the more injurious mode of taking alcohol. "It is very clear," he observes, "that alcohol, taken in the dram-drinkers' fashion, in small divided doses, by no means increases metamorphosis. It rather tends to diminish it, and this diminution is not sudden or immediate, but is more and more, for a certain period, till the retention reaches a point at which a critical discharge takes place in healthy persons."

And, again, when laying down rules for the use of alcohol in diseases, he enjoins, "Divide the daily allowance into two or three doses only, giving enough at once to produce a decided effect. The action of frequent small divided drams is to produce the greatest amount of harm of which the alcohol is capable, combined with the least amount of good."

Of the evil effects of drinking in the early part of the day he uses the following decided language:—"I have not yet met with a forenoon tippler, even though he never got drunk in his life, without a condition of stomach which most infallibly shortened his days."

The 3rd class of drinkers comprehends those whose allowance of liquor is so immoderate as to produce full intoxication. These are the out-and-out drunkards, who drink without shame or compunction, and who know not any limit to their debauch but the length of their purses or the capacity of their stomachs. In such cases as these there is generally much less difficulty in coming at a knowledge of the habits of the individual than in persons of the second class, whose rule of drinking seems to be "a little and often."

Nearly all the cases of alcoholism which have fallen under my immediate observation were females of the better class in society. All, with scarcely an exception, concealed the habit they had acquired of drinking to excess, so that it often needed a lengthened investigation and a careful analysis of all the symptoms, before any positive conclusion, as to the real cause of the patient's condition, could be arrived at.

All sought Medical advice on account of some derangement belonging to the alcoholism, though apparently not themselves recognizing the source from whence their ailment sprang. I should qualify this by saying that a few were brought by friends who had no suspicion of the patient's habits. The intoxicating liquors taken varied a good deal, viz., brandy, gin, champagne, port, sherry, whiskey, ale, porter, and, in one case, tincture of ginger—of which her daily allowance, for a length of time, was one pint. This unfortunate lady, who moved in a high circle, and was what is ordinarily called a strong-minded person, eventually died of jaundice, enlarged liver, and ascites. It is very well known that where the ordinary spirits cannot be obtained, the victims of this passion will not hesitate to drink eau de Cologne, lavender-water, sal volatile, compound spirits of lavender, and, in fact, any spirit they can lay their hands on. Most of us here have known, or heard of the museum porter at one of our schools of medicine, who used to drink the spirits of wine off the anatomical preparations, when he had not the means of buying a more potable description of alcohol. In justice to his palate I must add that this was before the methylated spirits came into use.

The ingenuity displayed by many of these individuals to hide the vice, and elude the precaution for keeping away the much coveted drink, is sometimes most curious. For example, a lady with this propensity very strong, was strictly confined to one room by her family, who allowed nothing to enter without its being carefully searched for the contraband article; nevertheless, in spite of all these precautions she managed to have spirits conveyed to her, not, indeed, in a bottle, jar, or jug, but in the undisguised and unsuspected *pot de chambre*!

Of my patients the youngest was a girl of nineteen, whose mother died from the effects of intemperance. Nearly half the number were widows. Four cases have come under my immediate observation where death took place in consequence of organic diseases induced apparently by the long continued use of intoxicating liquors. One of these cases I have already alluded to, as dying of jaundice, anasarca, ascites, and enlarged liver. Another, with fatty enlargement of the liver, died of exhaustion from long continued vomiting; and two died of cirrhosis of the liver and dropsy.

According to Dr. Marcet, "women appear to be much less subject to suffer from the long continued abuse of alcoholic liquors than men;" "but," says Dr. Forbes Winslow, "if the effect of the vicious habit be measured by the mortality, it will be seen from Mr. Nelson's data that the reverse is probably the truth."

I now come to speak of the *symptoms*. And here I cannot help remarking that many writers, of the highest authority on this subject—for example, Huss, Winslow, Anstie, Skae, Marcet, Leon, Thomeuf, &c., have confined their observations to the effects of alcohol on the nervous system, and give us little or no information about its effects on the liver, stomach, kidneys, intestinal canal, skin, and other parts subservient to *organic* life. Chiefly to this latter group, therefore, I purpose confining my observations, as I could add nothing to what the foregoing and many other authors have written in regard to the effects of acute and chronic alcoholism on the functions of *animal* life.

1. With persons given to excess in the use of alcohol, there is a peculiar odour of the breath so characteristic that, from it alone, one may almost predict the habits of the individual. It possesses somewhat of an ethereal taint, and has, at times, a strong resemblance to the odour given off in saccharine fermentation. Once perceived it is not readily forgotten or mistaken. Its presence always admits of detection, and, when detected, it suggests the direction our inquiries ought to take. Guided by this symptom, I have many a time been saved from committing blunders of diagnosis and treatment. It has awakened the first suspicion, and thus supplied the first clue to the real cause of the patient's ailments. These patients are generally themselves conscious of

their breath being impure, and they will artfully try to prevent your getting a full whiff of it; hence, an averted mouth, or the hand kept on it when speaking, may sometimes enable one to suspect the patient's habits, even before catching the odour of the breath. In reference to this point, Dr. Anstie writes, "One symptom it is not easy to explain, but which nearly always exists, even where there are no signs of dyspepsia, is a peculiar foul breath smell, which it is impossible to describe, or to mistake when once it has been smelt. It is quite unlike the odour of the alcoholic liquor itself, and may be separately distinguished, even where the latter is also present."

The experiments of Lallemand, Perrin Duroz, and others, seem to show that alcohol undergoes no chemical change in its passage through the body, and that none of it remains behind. Now, the character of the breath I have described, is only observable for a comparatively limited time—some hours probably—after the ingestion of alcohol, and is, perhaps, due to its presence in the expired air. This might go far to account for the cough which, according to Dr. Craigie, is an invariable symptom with all spirit drinkers.

2. Vomiting, as every one knows, is a common effect of a drunken debauch. But vomiting may also present itself in a more persistent way in consequence of the immoderate, though not intoxicating, use of stimulants. The irritability of the stomach is often such that for many hours the organ will not tolerate the smallest quantity of the blandest fluid. Some of the worst cases I have ever met with of persistent convulsive vomiting were of this kind. In one instance—that of a young married woman—the protracted violent efforts of vomiting and retching were most painful to witness, and well nigh threatened to extinguish life by their uncontrollable severity and long continuance. This patient used to take about a flask of brandy, with a free allowance of champagne in the twenty-four hours, but yet never presented the appearances of intoxication. She died of exhaustion in one of these attacks, and the necropsy revealed *no disease of the stomach beyond some slight congestion*, but the liver was somewhat fatty. Dr. Chambers relates the case of a lady dying under precisely similar circumstances. The symptoms "were those of simply retching and sinking, and the nature of the case was made apparent by her desiring her maid to bring her a glass of brandy, even while I was speaking to her."—(Case XCI.)

This alcoholic vomiting may, to a certain extent, admit of being recognized, by its coming on in the morning and forenoon—by its extreme severity—and by its independence of any organic lesion, or other discoverable cause, such as pregnancy or Bright's disease. At the same time we must take into our consideration all the accompanying symptoms and circumstances of

the patient, that we may see how far these confirm or negative the above conclusion.

The morning sickness, in Dr. Anstie's opinion, "is not a mere dyspeptic disorder, but a true part of the nervous phenomena of a receding narcosis."

Along with this symptom there often exists, as Dr. Budd has remarked, an inflammatory or catarrhal condition of the gastric mucous membrane, which may give rise to flatulence, loss of appetite, and other disorders of digestion so common in persons addicted to intemperance.

3. There is undoubtedly a form of diarrhoea occasionally induced by acute chronic alcoholism, and long before any structural disease has taken place in the stomach or liver. After any excess in the use of alcoholic beverages many persons get an attack of diarrhoea, and this from its cause, has received the epithet of *crapulous diarrhoea*. It would seem to be excited in consequence of the pylorus allowing the food to pass in an undigested state, so that it acts as an irritant to the intestinal canal, causing increased exhalation and peristaltic action, accompanied by pain and griping. Examination of the fæces shows the imperfectly digested state of the food, which is commonly acid, and sometimes putrid, from an insufficient admixture of bile to prevent decomposition. Besides this *crapulous* form, diarrhoea is sometimes met with in other cases of chronic alcoholism, even where the intemperance is of a moderate kind, never amounting to intoxication. Here I cannot attach to it any peculiar or pathognomic characters. It would seem to be the consequence of a congested and irritable condition of the intestinal mucous membrane, so that very trifling causes are sufficient to provoke increased action of the bowels; and this increased action is generally more troublesome early in the morning, or in the forenoon. I have seen this kind of diarrhoea kept up for months by the habit of taking "a night cap" of brandy or whiskey at bedtime; and to be permanently cured by giving up this hurtful practice.

4. Nothing is more common in persons of intemperate habits of every degree, than a slight tinge of jaundice, seldom amounting to more than what would be called a bilious hue in the conjunctivæ. This sometimes succeeds to vomiting (and may occur no matter what has caused the vomiting); and it may result from organic disease of the liver, induced by the prolonged use of alcoholic drinks; but, independently of these classes of cases, we meet with it as a symptom of chronic alcoholism. The non-elimination of this bile, whose retention in the blood causes the jaundice, is, most probably, due to the influence of alcohol in retarding or diminishing vital metamorphosis. This icteroid tinge of the sclerotic is well known to be a very constant and characteristic feature of the habitual drunkard's physiognomy;

but even in the milder cases of intemperance it is occasionally present, and thus serves to aid our diagnosis.

5. I am disposed to think that among the class of moderate drinkers, the appearance of acne in any of its forms is rather exceptional; still the occurrence of acne on the forehead or nose—I do not so much suspect it on the chin—should awaken a suspicion that all is not right, and urge on further inquiries in the alcoholic direction. I have seen marked examples of acne indurata and acne rosacea, induced by the habit of taking spirits at bedtime; which entirely subsided when this habit was given up. This recalls to my mind the case of a young lady I attended for some time on account of indigestion, and frequently recurring acne on the lower part of the face. She seemed to derive little benefit from all the medication and careful regulation of her diet. In truth, her age, her social rank, and refined manners, lulled every suspicion that crossed my mind. At length, she accidentally dropped the observation that no anodyne was so effectual as gin, in relieving her nocturnal wakefulness and fidgetiness—symptoms, I may here remark, which are very often complained of in all cases of alcoholism. This admission led me to cross-examine her a little more closely, when I made out that she was accustomed to take a wine-glassful of raw gin on going into bed, “just to make her sleep,” as she mildly expressed it. On making this discovery regarding her habits, I own that I was candid and foolish enough to pronounce, on grounds moral and physical, a strong disapproval of the practice in question. What the effect of this lecture was upon the patient I had no opportunity of knowing, as I was never asked to renew my visits. *Verbum satis sapientibus!*

6. There is not much, I think, to be learned from observation of the pulse in these cases, unless we happen to see the patient when under the stimulating influence of drink, at which time the pulse will be found greatly accelerated, even though the patient may be far from intoxication. This vascular excitement, without any morbid lesion to account for it, would then become a very suspicious circumstance. Most observers agree in representing the pulse to be rather slow and feeble during the intervals of intemperance, but yet not exhibiting any pathognomonic character.

7. There is a group of nervous symptoms, two or more of which are pretty constantly present in chronic alcoholism. For reasons already mentioned, I only advert to these in a general way, just to complete the enumeration of symptoms which may attend upon chronic alcoholism, and thus aid in its recognition. This group comprises the following:—Extreme nervousness; sleeplessness; fidgetiness; muscular tremors; hallucinations of sight or hearing; and epileptiform seizures. Of this last symptom I have only met with one example. The attacks had come

on after the patient—a married lady, aged twenty-five—had been tippling for two years. She presented many of the other symptoms of alcoholism. I may just mention she was almost the only patient I ever met who confessed—though not before she was charged with it—to being guilty of intemperance.

A word as to muscular tremor. Some writers regard this as the most constant and reliable sign of alcoholism. It is true we may have the same symptom arising from mercurial intoxication, from paralysis, and from pure senility; so that, *per se*, the tremor is not pathognomonic of alcoholism. Nevertheless, the alcoholic tremor generally admits of easy recognition. It may amount to a state of universal rigor, or show itself in the unsteady gait, or faltering prehensile power; it can be suspended under the influence of strong maniacal excitement, and persist during extreme agitation; and sleep has much less effect in stopping it than in stopping the movements of chorea. It is not so apt to accompany alcoholic delirium coming on in the course of another disease, as when this delirium attacks a person otherwise healthy.

Among soldiers a common test of a man's sobriety is his ability to hold the right index and thumb steadily apart at a distance just sufficient to let the light be seen betwixt them and no more.

Notwithstanding this long list of symptoms, it must be confessed that many cases will come before us where we may suspect intemperance, but yet find it hard to prove it. Nay more, chronic alcoholism may exist and yet not reveal itself by any symptom. This latent alcoholic saturation, as Trousseau calls it, possesses peculiar interest for the physician, as it may declare itself by its effects at a critical moment when the patient is attacked, for instance, with some acute disease and then the alcoholism shows itself by an unexpected delirium or by an ataxic condition out of all proportion to the severity of the organic disease.

I fear I have trespassed too long on the time of the Association. Let me now bring this crude, ill-digested paper to a close, but not before I ask your indulgence towards its many faults of omission and of commission.

The Chairman looked upon Dr. M'Clintock's paper as one of the most interesting communications that had been laid before the Society for a long period. It dealt with a very obscure subject, and one that delighted in secrecy, and the more information they obtained upon it the more likely were they in the practice of the profession to render service to their patients. He, unfortunately, had some extensive observations of the effects of intoxicating liquors, from being connected with a lunatic asylum, and he could bear out what Dr. M'Clintock had said—that these were cases which had organic origin, and had led to that miser-

able and degrading vice. He could not say that it was confined to any particular class of females, as far as being married or unmarried was concerned; but it was generally to be found among the unmarried females who had arrived at a certain age. It would appear that, when the most important function of the uterus was not fulfilled, there was then a disposition for the reception of stimulants, and these cases presented the greatest difficulty in being relieved. He, however, had one case under his care in which the patient evinced the worst possible form of addiction to this vice, and after being in the asylum for some time, she became reformed, and for four years had remained perfectly well, and in mental health, and never returned to her former vice. These cases were therefore not to be looked upon as incurable.

Dr. Stewart was glad to hear the President say he had seen one recovery in the case of a female. He (Dr. Stewart) had had a large experience of lunatics, and had seen many painful cases of alcoholism among them; but he had never met with one instance of the recovery of a female.

Dr. John Eustace did not think he had ever listened to a paper with more interest than he had done to Dr. M'Clintock's valuable communication; but there was one view of the question which he rather expected Dr. M'Clintock would have directed his attention to—and with which he was particularly qualified to deal—namely, with regard to the hereditary transmission of the disease. Having met with a great number of these cases (on account of being a specialist in some degree) the impression had been made on his mind, from the history of them, that almost the largest proportion of these cases could be traced back to hereditary transmission. He thought the view which had been brought before them with regard to the peculiar odour of the breath, was one of great importance. It was a feature in those cases which he had invariably observed, but he did not agree with Dr. M'Clintock that the patients desired to conceal their breath from the observation of the physician, for they had sometimes cast it upon him as a boast saying, "you will get no smell of drink off my breath;" and the fact was as they said. He remembered a medical man of some eminence in this city who was under his care some years ago. In that case his attacks presented all the appearances of fever, and for a number of years, when abroad and travelling in England, he had been treated by some of the most eminent medical men for fever. He happened to come to some Dublin doctors, who, knowing more about the matter than he supposed, decided that their poor brother's case was one of intemperance. When placed under his (Dr. Eustace's) care, they trusted somewhat to his honour not to drink, and the consequence (as might indeed have been expected) was that he had an attack of fever. He had the tongue and the pulse of fever, but there was the peculiar ethereal odour from his

breath that indicated the real cause of his illness. Yet he declared, with tears and oaths, that he was suffering from fever. He (Dr. Eustace) had a most careful search made, and even when the brandy bottle was produced, not half empty, as in the case described by Dr. M'Clintock, but altogether empty, he declared it was a false charge against him, and threatened an action for defamation of character. That gentleman invariably appealed to his breath to show that he had not taken drink. There was another point he wished to mention. With regard to the treatment of these cases he had found that it was best to discontinue the poison as soon as possible; and if the patients could be induced to take plenty of food they would soon be got all right. There was a morbid appetite for food in many of these patients, and if the patient could be got to indulge in it, it might take the place of the appetite for drink. In the Swedish legislature advantage had been taken of that fact, and publicans there were licensed on condition that they would supply cooked food to all persons frequenting their houses, they having a profit on the cooked food and the state having a profit on the drink. The publicans, therefore, in their own interests, became advocates of temperance. He thought the society ought to unite to put pressure on Dr. M'Clintock to investigate the hereditary tendency of the disease, which is quite a matter within his province.

Dr. H. Kennedy thought that, in these cases of alcoholism, there was something in the constitution of the individual which led to the vice. Every one must be struck with the fact that persons equally exposed to temptation would not all fall into drinking habits; and precisely the same was true of tobacco; every one could get these things, but all did not choose them. Hence, he thought it was something peculiar in the temperament of the individuals that led them to drink. A deranged nervous system might lead gradually to the use of stimulants; but there was something totally independent of that; for, in the case of females, it could not be supposed there was such a strain on their nervous system as to lead to those habits. Therefore, it appeared to him, that there was a certain kind of constitution which had a tendency to run to drinking. His experience of the administration of wine and spirits to patients in hospitals did not show that it had led those persons into bad habits. The poorer classes who were treated in hospital did not like wine, and if they did, could not get it; but, he thought, he had known some instances among people of a higher class in society, where the ordering of stimulants as medicine had led to drunkenness. With regard to Dr. Eustace's remarks of the hereditary character of this complaint, he believed there was sufficient evidence to show that a drunken father was likely to be succeeded by a drunken son. On many occasions, more formerly than of late years, he had committed the mistake of overlooking cases of this sort. The tip-

pling was generally so well concealed, and the surrounding circumstances were so totally inconsistent with the idea that the individuals would fall into drink, that the physician should ever be on his guard. The point of the latency of the effects of alcoholism was important. Persons addicted to this vice often went on for a long time apparently well until they met with some trivial accident, when the wound or general symptoms assumed a form that showed the latent alcoholism.

Dr. Nixon said, as regards the symptoms and signs so valuable in the diagnosis of alcoholism, he wished to ask Dr. M'Clintock if he recognized another one—he alluded to a peculiar oedematous condition of the face, a flabby condition of the muscles. He (Dr. Nixon) had noticed this frequently at the hospital and dispensary, and from it arrived at a conclusion which proved to be correct, that the patient was the subject of chronic alcoholism. The muscles of expression were entirely lost, and there was that flabby condition of the face so often seen in the debauchee.

Dr. Aquilla Smith said there was nothing more universally admitted than the fact that, in our time, intemperance had greatly increased among the better classes of society. His friend, Dr. M'Clintock, however, did not enter into a consideration of the causes of that undue amount of intemperance. It was a good while ago since he read a paper upon the improper use of alcoholic drink, by an eminent physician, Dr. Rush, who flourished at the close of the last century. He recollected distinctly that Dr. Rush, who was admittedly the most eminent practitioner in America in his time, had foreseen the danger that might arise from medical men sanctioning the use of whiskey as a remedial agent in the treatment of patients. He did not admit at all that the physician, by ordering stimulants, led to habits of intemperance, but he foresaw that the charge might be made against them; and they all knew it was the common dodge among the better class addicted to immoderate indulgence in drink, to say that their physician had ordered them to use stimulants freely, and that this had led them into the habit. He did not believe the medical profession was greatly to blame in the matter; and he looked upon these statements as a mere device which these people had adopted in order to screen themselves from the imputation. He had met with several instances where that was the apology the drunkard made for his indulgence in this vice. Among the causes which had led to intemperance among the higher classes was the total change of habits. In his early days there was no such thing known among young men as soda water and brandy, and sherry and bitters, and he saw too many instances now of the evil of indulging in these stimulants frequently during the day. The habit had probably come from America, and was one of the causes of the great increase in intemperance. He was old enough to recollect when the habits of

the better classes were very different from what they now are. When a young man, he had known of parties where the door was locked and no one allowed to go out until he had drunk as much as the host thought proper. He knew many persons who lived to be seventy, seventy-five, and eighty years of age, who enjoyed good health and were active, vigorous men, and yet were in the habit of drinking many tumblers of punch every day, but they never touched a drop before dinner. It was well known that the danger to health was greater by taking small quantities of spirits frequently than by drinking occasionally to excess. He would succeed in time in killing any man if he gave him a tea-spoon of whiskey every hour in the day, whereas four tumblers of punch after his dinner might not do him any harm. The frequency of taking small doses of spirits was one of the great causes that led to organic disease. He believed there was the peculiar odour in the breath of drunkards referred to by Dr. M'Clintock; but his (Dr. Smith's) suspicions were more frequently raised by finding a smell of carraways and peppermint in the patient's breath. The mendacity of the victims of alcoholism was notorious, and they often showed wonderful skill and ingenuity in obtaining drink. The other day a man was admitted to Dun's Hospital suffering from painter's colic. He thought, or said that he thought he was labouring under a difficulty of passing water, and asked for some gin to enable him to do so. He (Dr. Smith) refused to give him any, and said he would order him a mixture that would have the desired effect, and when the man found he could not get the gin his kidneys began to act well. The mendacity displayed by these people was a consequence of the demoralized state they had been brought to by an insatiable thirst for intoxicating drink. As to the circular to which Dr. M'Clintock had referred, he felt ashamed of the medical profession falling into such a trap, and he thought many had signed to get rid of the importunity of the persons who hawked it about, and who published it to serve their own objects.

Dr. Finny wished to call attention, as an aid to diagnosis, to the connexion which intemperance bore to insanity, or such diseases as were due to nervous disorganization. Some members of a family he attended had shown the symptoms of alcoholism, while others had shown nervous diseases, neuralgia, epileptiform convulsions, and dementia. He had to deal with these cases rather as a disease of the mind than a vice of habit. One point among ladies who suffered from various nervous symptoms he had noticed to be the great relief they derived from tea and such like stimulants, and he found that very often they varied the tea with champagne, and in this manner produced symptoms of alcoholism. In one of these cases both husband and wife were affected. The wife called on him one day to know how to overcome the vice of the husband, she herself having been under his

care from the effects of the same thing! He had often noticed the smell on the breath of such patients, but he did not know its cause or its value as a diagnostic until now, and he had, therefore, derived that information from the present discussion. He thought the idea that alcohol prescribed as medicine had been the cause of bringing on this vice had been most unfairly urged, and in many instances made a screen behind which to hide themselves by habitual drunkards. He believed the true safeguard against such a danger in prescribing stimulants was to order them only to be taken along with either medicine or food.

Dr. M'Clintock thanked the Society for the kind way in which they had received his paper. The subject was one of the most extensive kind, and the difficulty was to confine himself to any one branch of it, and to resist the temptation to follow out others which presented themselves for consideration. He might have adduced a great many clinical illustrations of chronic alcoholism and its results, but it would have extended his paper to undue length. He knew that in bringing the subject forward in any one shape he could not fail to elicit much interesting discussion, and he was glad the speakers had not confined themselves to what was the special drift of his communication. It had often been stated that though there is hope in reclaiming a male drunkard, you will never reclaim a female. He had, however, known one or two cases of women having been reclaimed. One lady had gone very far. She then got a very serious illness from which she narrowly recovered, and from that time she had completely given up drink, and now enjoys good health. It was, however, almost a solitary instance in his own experience. With regard to the hereditary transmission of the propensity to intemperance, that was a subject which, in our own day, had engaged a great deal of attention, and it seems to be very generally admitted, that if we look into the history of persons who were drunkards, we shall find that the propensity had shown itself in some of their ancestors. As to what Dr. Eustace said about drunkards asking the physician to smell their breath in proof of their sobriety, the fact was, that sometimes they were not themselves aware that their breath had the peculiar ethereal smell, or that it indicated habitual intemperance, and appealed to the test, knowing that the smell of raw spirits would not be got from them at the time. A strong odour of carraway-seeds or of cloves (as Dr. Smith mentioned) was also a very suspicious indication, being almost always taken to conceal the smell of spirits or tobacco. As to the puffy condition about the eyelids, referred to by Dr. Nixon, that was more to be found in confirmed drunkards where alcoholic cachexia had come on, and no doubt it was a striking feature in the alcoholic physiognomy, and was generally accompanied by œdema of the conjunctivæ. Although it was possible some blame might occasionally be attributed to medical

men for incautiously prescribing stimulants, and thus creating an appetite for them, yet we should not accept the statements of drunkards themselves on this point, as their mendacity is too notorious! Often a stimulant was ordered by the medical man to overcome some degree of weakness or sinking, and patients very soon found out that a little brandy, or whiskey, or wine, was equally effectual in remedying that distressing prostration or sinking. Of course the more frequently they took these diffusible stimulants the more necessity they felt for resorting to them. In most of these instances it was not for the mere pleasure of swallowing these stimulants that they were taken, but to remove an overwhelming feel of depression or sinking. As to the *causes* that led to excessive drinking, the question was a very interesting one. He only alluded to one of them—the intense intellectual activity and competition of these times. He must, however, admit with Dr. H. Kennedy that this would not so strongly apply to the cases of intemperance among women. The question would afford ample scope for a special inquiry, and to the philanthropist, the legislator, and the physician it was one of the deepest importance. He did not touch in his paper on *treatment*. He thought, however, it was a great mistake not to discontinue completely and entirely the taking of spirits, in all cases of alcoholism. He believed no injury would arise from totally and abruptly withholding it from the patient.—*The Doctor*.

MEDICAL INTELLIGENCE.

Medical Intelligence.

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MEDICAL FUND OFFICE.

Death.

Surgeon W. N. CHIPPERFIELD on 22nd May 1873.

FORT ST. GEORGE,
30th May 1873.

BOOKS, &c., RECEIVED.

Medical Press and Circular, April 2nd, 9th, 16th, 23rd.
London Medical Record, do. do. and 30th.
The Doctor, April 1st. May 1st.
Indian Medical Gazette, May 1st.
Journal des Connaissances Médicales, April 15th, 30th.
American Medical Record, April 1st, 15th.

Name of Sub- scribers.	Children's date of birth.	Sex.	Rate of Pension secured.	To what period.	Payments how made.
G. S. W. Ogs	12th Jany. 1873.	Male	Full	To 18 years	By Donation and Subscription.
C. Smith.	8th Feby. 1873.	Female	Half	To 21 years	
E. B. Dawson	23th March 1873.	Male	2-3rd	do.	By Donation.
J. A. Cox	11th Novr. 1862.	Female	*1-3rd.	do.	
Do.	do.	do.	Full	*From 21 to D or M &c.	By Donation.
Do.	13th April 1864.	do.	*1-3rd.	To 21 years	
Do.	do.	do.	Full	*From 21 to D or M &c.	
H. R. Oswald	31st August 1855.	Male	do.	*From 18 to 21 years.	

N. B.—The rates of Pension marked thus *are additional to those previously secured.

MEDICAL FUND OFFICE,

FORT ST. GEORGE,

30th May 1873.

List of Children.

of whom Payments have been notified by the receipt of Paymaster's Statements, &c.,
from 1st to 30th May 1873 for securing the following rates of pension.

