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PLATE No. 1

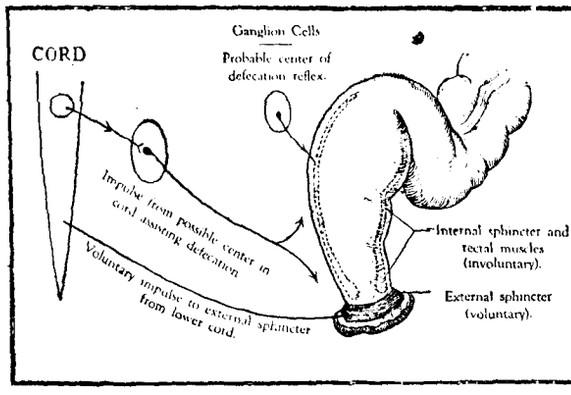

PLATE No. 2

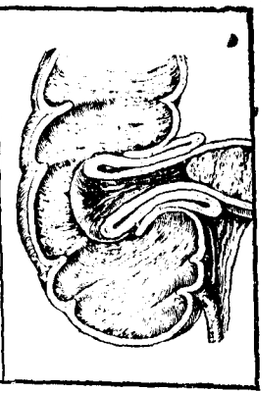

Plate No. 1—Proctogenous Constipation. When constipation results from failure of the defecation reflex, disturbance of entire intestinal tract by catharsis is pernicious.

Plate No. 2—Ileo-cecal Intussusception. Should this condition be incorrectly diagnosed and a cathartic given, the results, particularly in children, may prove fatal.

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THE

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ORIGINAL ARTICLES.

THE VENEREAL PROBLEM

BY

C. F. CHENOY, M.B., B.S., D.T.M., D.P.H., F.R.I.P.H. (LOND.), DISTRICT CIVIL SURGEON AND SANITARY OFFICER, RAICHUR.

Sir Archdall Reid's words are worth a few moments of thought. He says that "In England, at the present time, if one person deliberately poisons and kills another with arsenic, the law hangs him by the neck till he is dead. If he merely tries, but fails, the law gives a long term of penal servitude. But it is open to any diseased drab to tempt and poison with venereal disease any inexperienced boy, or to any diseased scoundrel to poison, perhaps his own wife and children, perhaps even to death, and the law lifts not a finger in protest, provided the poisoning is done for private profit or pleasure, and in a most cruel and treacherous way conceivable."

To a medical man, daily he sees innocents slaughtered by the poisoned parents or even relations and friends. What has Law and Government, nay even Society, done to nip this? Society, knowing full well its great drawbacks, leaves its flock of innocents amidst the black and spotted victims, to be whirled and carried about. What is the result? 70% of the total population is affected by venereal disease.

The Final Report of the Royal Commission on Venereal Diseases, issued in 1916 states, "That the number of persons who have been injected with syphilis, acquired or congenital, cannot fall below 10% of the whole population." If this is the

condition of syphilis what about that gonorrhœa? We all know that gonorrhœa is six to seven times as common as syphilis. If this estimate of the Royal Commission approaches the truth, then 60% to 70% of the population is injected.

If in a country like England this state exists, what is the true condition in India? People will argue that immorality is less in India than in England—if this is the only safety anchor, let these people just watch (not search) and they will be satisfied as regards the moral condition of India compared with England. In India, immorality has been in existence, but lately it has changed. In fact, the fashion of immorality is more on the increase. The other disadvantage is that education—development of mind. Venereal clinics are not found to exist in India, whilst in England innumerable such facilities are given to the public. In India, can we boast of such clinics or disinfection centres? Comparing these facts can one estimate less precentage of venereal disease in India? Again, comparing our hospital registers, our own personal experiences as medical officers, we see more of venereal disease here, and that too in a severe form. People in countries and villages are less prone and one class of persons less affected than the other. Here again the education of the class is well-illustrated. In India (Southern) Lingayats (a class of Hindus) take the palm, followed by the Mohammadans, then the Hindu, the Anglo-Indian, the European and the Parsis. Men suffer more in proportion to women; for on an average the young men are less chaste than young women. Venereal disease is, in fact, by far the most prevalent and endemic of all the more serious diseases. There are few, if any, families of which some member has not been infected. Together it constitutes a mass and the principal cause in upper class is vice and drunkenness and in the lower class, poverty.

The next question which arises is whether immorality could be checked. Yes, to a certain extent and that by educating young boys and girls. Here again the question of sex instinct is more predominant. Dr. Otto May says, "The sex instinct is a very potent one, fairly controlled perhaps in some individual, but of almost savage strength in others. In an ideal community, an individual on reaching proper maturity should be able to satisfy this instinct by suitable mating, but under present economic conditions this is usually quite impracticable. As a consequence, the great majority of our men and women are condemned for a larger or shorter term either to subdue this instinct, or if this grows beyond their powers, to seek gratification by casual intercourse. It is this disharmony between sexual and economic maturity which is the root of trouble, and unless and until this disharmony is abolished, the hope of extinguishing sex irregularity must remain an Utopian dream." Sexual morality, if taught, should be taught like honesty. With hundreds of years experience before us we can safely say that immorality though not wiped out, still will be less in future than is in the present or was in the past. This can only be done by instilling the knowledge of risks of disease by sexual intercourse. This stage of education, so far as the elements are concerned, must begin at an early stage. It is unnecessary and undesirable to impart medical knowledge to very young boys and girls and to warn them against risks they are yet not liable to be exposed. It is only when the age of strong sexual instinct, potential or actual, begins that the risks, under circumstances of yielding to it, must be made to be present to the mind. It is at this time that the elementary instruction in general facts of venereal disease should be imparted by the parents, teachers and always by the family physician. It would be much better if all Government schools make it a compulsory item, to get lectures delivered by medical men, on disadvantages and the risks of infection by several diseases, in a very simple and concise statement of actual facts concerning the evils that beset life. This is quite sufficient and adequate and most essential. The right thought will lead to right action and thus may be able to overpower sex instinct at the right moment. To ignore this need is only to set a match to sex instinct and thus reduce our boys and girls to poor and weak-minded and debilitated class, whereby the downfall of nation exists and that too in everlasting slavery.

The only other conceivable alternative is to improve sanitation which means prevention and also cure of the infected and thus suppress the disease.

At present we shall deal with prevention only. Is prevention necessary or not? Most minds are agreed that it is our only hope to suppress this "plague". Others argue that by prevention and provision of prophylactic outfit we give a false sense of security and will thus increase immorality, by reducing the deterrent effect of fear of infection. This argument carries no weight. As shown above the sex instinct, if once powerful, is bound to lead a man or woman astray and under the present economic conditions it is usually impracticable to

satisfy this instinct by suitable mating. Let us see. Shall we save the innocent with the guilty or let the innocent suffer with the guilty? For instance, a man injected, seduces an innocent woman and infects her. She, the innocent, knowingly or unknowingly, becomes a hostess for innumerable guests, and innumerable innocent babes. What is the result? The disease is passed on to others, even to innocent babes and children and thus the infection spreads to hundreds. Has this increased morality? Now suppose the person exposed knew the ways of prevention, hundred to one, he or she would not be infected and then she or he will not suffer and thus hundreds are saved from this vile infection. Again the argument is brought forth that mostly the prostitutes are the causes of infection—but how many men in fear of infection, have sought satisfaction of their desires from "decent" women and what has been their lot? On the whole, the fear of venereal disease is not the cause of checking immorality. In a way it secretly tends to increase it. Let us then teach the innocent and those whose sex instinct has a masterly sway over their minds, to avoid this cancer of sin, by prevention. If this instinct proves beyond their powers it leads to mischief, so let them not run the risk of infection and have a diseased brain, for diseased brain is the cause of innumerable sins. Let not the mirror of his mind be tarnished. Let him summon and understand his position to self and to the public in general. Let us by clear teaching make an end of insincerity and humbug and keep a broad mind, knowing that instinct is bound to show itself. Then why not save the innumerable from the terrible and horrible of all diseases—the Venereal Disease?

In the Great War it was shown by all veneralogists that even ordinary washing with soap-water just after exposure, has lead to a vast decrease of infection in the units. Later on, use of potassium permanganes lotion and calomel ointment has lead to complete absence of venereal disease, throughout the army when these devices were used and men were taught to make use of it by the officers commanding the unit.

In brief, the method advocated by Metchnikoff, was to wash the part exposed as early as possible with potassium permanganes lotion. Next, to urinate and instil some antiseptic lotion like the above or run into the urethra a few drugs of protogol jelly and squeeze the urethra all over; or if possible to irrigate the urethra with a syringe. The next procedure is to dry the part and spread calomel ointment 30%,

rubbing it in for two or three minutes. Calomel, as we know, is a compound of mercury which has long been known as a curative of syphilis. This ointment should be used as early as possible. Metchnikoff has demonstrated that even 2 hours after infection the use has checked syphilis. This ointment should be spread especially in and around all crevices, nooks and on bruises rubbing it in. The public should be taught that the idea of merely spreading the ointment is of no use. It should be rubbed in well, for the calomel in the cream combines with the albumin of the microbes and thus poisons the germs of syphilis. We know well that the penetrating action of the germ is slow. In fact, it requires a bruise or tear in the skin or mucous membrane to get the infection. Even then it remains on the surface for sometime and could be demonstrated two or three times after exposure. It is during this interval that it should be destroyed. The earlier the better. What is the best way to get rid of all venereal germs? First by passing water we push out any germs they have invaded the urethra. Next by washing the exposed part we try and wash out surface infection. The instillation of a few drops of lotion of protogol jelly, or leaving a medicated bougi, is to give the urethra all chance to kill the invasion. The rubbing of the ointment is to get the stuff absorbed and attack the germs.

Now-a-days for prevention use, some handy packets should be put up. In France, match-box-like cases are made up containing one collapsible tube of calomel ointment 30%, one tube protogol jelly and another tube potassium permangdnes crystals. In such manner anything like a packet. vest-pocket size, should be made up containing the necessary ingredients and these should be allowed to be sold by chemists. In England the Veneral Act of 1917 forbids the sale of these remedies by fines and imprisonment. What is the result? The infected has no chance of getting rid of the just-acquired disease in its infancy, nay in a stage when he could simply by washing with antiseptic lotion and rubbing the ointment, he could save himself and thus get rid of this disease. By this simple disinfection of self, he keeps his own home happy and in a healthy state. His wife and children are in good sound health. What more does a man want in this world but to see his own enjoying good sound health which always brings smiles and sunshines in it?

The other means of limitation and entire suppression of venereal disease, is to deal with treatment and to cure as

speedily as possible, and thus prevent these persons becoming sources of fresh infection.

Systematic medical treatment on a large scale is the goal at which we have to aim. To a poor man and woman suffering from venereal disease the same help should be opened as to the wealthy voluptuary. The provision and means of treatment of venereal disease cannot, in any form, be too free. In special venereal clinics, convalescent homes, public hospitals, and private clinics, means must be provided for an intelligent treatment of this disease. In India, vast sums are given by charitably-disposed persons for tuberculosis, fever hospitals, maternity and child-welfare schemes. Even Government have lavished freely grants for such work——then why is it that in India venereal disease is not dealt with systematically and vigorously ? The only answer is, that we place venereal disease in the category of shameful disease, derived by immorality and are ashamed to acknowledge it. Though all of us know what it is and how far it has advanced, we are, in other words, moral cowards and humbugs. Why not consider venereal disease as other infective diseases and thus treat and give facilities for treatment and prevention like tuberculosis and mental diseases ? Syphilis and gonorrhœa are both curable, the later often with great disadvantages because of its difficulties. Syphilis, though easily handled, has again its own drawbacks and risks and also requires care. So also all diseases. Medical Colleges should be made to add to its curriculum, special training in venereal diseases for at least three months and special training to students in venereal disease before they are let loose on humanity. How many medical men do we see now-a-days not in a position to treat or handle gonorrhœa and syphilis, in a modern and scientific way, though daily in their life they find venereal cases coming to them for treatment.

To stamp out this disease from India, we should keep an open mind, and have adequate provision for prevention and treatment of this vile plague. Prophylaxis should be broadly encouraged. Disinfecting centres and clinics for treatment with experienced and trained men in charge should be laid open for public. There should be standardisation of methods of treatment, diagnosis and cure. The public should be educated and encouraged, pamphlets distributed in all languages regarding the prophylaxis, cure and treatment. If such steps are now taken by the Government and public bodies combined, then and then only

we can succeed in stamping out and eradicating this vile plague from us and thus give a brighter aspect to our progeny. In India, poverty and lack of knowledge have existed and are sure to exist. Venereal disease was scattered but now it has spread all around us. There is not a place where we do not see it. In fact, the period of life is decreasing amongst us—no doubt due to many causes—but I feel sure that veneral problem is one of the chief factors.

MENTAL HEALTH

BY

FRANK NORONHA, M.B., C.M., D.P.M. (Eng.) SUPERINTENDENT, THE ASYLUM, BANGALORE.

(An Address delivered at the Vani Vilas Institute, Bangalore.)

There is a tendency to think of mental health as something relating primarily to a diseased mind. This may be partly true but the essential problem of mental health and its relationship to children is concerned with the bringing up of normal individuals. Scientific investigation of mental disorders has given us an insight into the working of the normal mind and the knowledge thus acquired enables us to avoid the pitfalls that may be encountered by a tolerably sound mind. The science of mental health is a positive constructive science intended to improve the adjustment of an individual in a complex society. As life becomes more complicated, as difficulties in life increase, and as the situations one has to face become intensified, the necessity for conserving mental energy and for maintaining a mental balance becomes all the greater.

By the adjustment of an individual we mean his ability to enter into personal relationship with his fellow-beings with sufficient ease and comfort, and to expend his energy in real work and objective interests. On the other hand, a badly adjusted person is one who is emotionally unstable and is unable to face a situation and who expends all his energy in solving mental conflicts or in day-dreams or in castle-building or who is continuously self-interested and who finds it difficult to be personally happy or to be socially useful. Between these two extremes there are all grades of mental states.

Those who have the care of children would easily recognise the happy, agreeable, bold, assertive child on the one hand, and the self-conscious jealous, ill-tempered and timid child on the other. The causes of inadaptability or mal-adjustment of the

latter type of children will, on investigation, be found to lie in their bodily condition or in their surroundings in which they are brought up—in other words, in the organism or in the environment.

It is an accepted fact based on scientific data that the first 4 or 5 years of life vitally determine an individual's adjustment to life. What an individual's future mode of behaviour will be is determined in childhood by his relation towards his father, mother, brothers and sisters.

An extreme dependence on the parents may hamper him to make a bold and aggressive attack on his environment later in life. In such cases the person develops fear or lack of confidence in his ability to solve his own problems, develops a feeling of inferiority which later on prevents him from rising to the level of his fellows, no matter however richly endowed he may be intellectually. We meet with people with whom it is difficult to get along. We call them queer or odd, irritable or unreasonable, selfish or egotistical and what not. On the other hand, others find it difficult to get along with us because we are self-centred or full of prejudices. Now it cannot be said that people are born this way but rather they are made this way, the foundations of this type being laid in childhood. Upbringing of children does not merely consist in formation of physical habits in them such as cleanliness, orderliness or politenes. Emotional habits are far more important in so far as its happiness and its success in dealing with others in after-life are concerned.

Every waking hour, the child is reacting, emotionally to its environment. In these reactions the child forms emotional habits *i.e.* ways of meeting umpleasant situations, ways of looking at things or feeling about things and these habits become fixed and render a person happy or unhappy, efficient or inefficient, according as these emotional habits have been good or bad. It is to the bad emotional habits that the eccentricities of the odd or the queer, the twisted or warped personalities which we sometimes come across, could be traced and if others place us in a similar category it is again traceable to the unhealthy mental habits that we have formed in childhood.

Children should never be frightened—for frightening a child is a very serious matter although some adults take it as a joke. Many of the hysterical or neurotic tendencies of later life have been traced to fears experienced in early life.

It is of course necessary to teach children to act in a way that is socially acceptable but this should not be done through shaming them. Shame is not a healthy emotion to bring into the life of a child, neither is humiliation, nor painful self-consciousness before others. It is not uncommon to find persons developing feelings of inferiority in youngsters especially if the youngsters do not come up to their expectations. Parents may often create these feelings in a child by calling it names that indicate that they do not think highly of the child or comparing one child with another unfairly. Such attitude towards the child may bring about a temporary rectification in the child's conscious mind but the subconscious influence of such attitude will be to the child's great detriment and may perhaps act adversely for the rest of its life.

We may here appropriately consider the question of punishment. Punishment should be fair, reasonable and prompt with due regard to the child's sense of fairness and justice. If the punishment is merely the suppression of the parent's anger, it creates a perfectly proper anger or rebellion on the part of the child. The child will easily recognise any loss of self-control on the part of the parent and may engender a sense of fear in it which, it need hardly be said, becomes a fixed emotional habit leading to great difficulties later on. Good behaviour taught to children by unwise punishment is purchased at too high a price. In the mental training of children one should take into account certain inherent tendencies in every child and development should proceed on the basis of these tendencies. In the first place, the child is imitative. This tendency exerts a powerful influence for good or evil in the life of the child. The faculty of speech which has been such a powerful instrument in the progress of civilisation depends largely on imitation. On the other hand, a child imitates a bad example just as easily as it does a wholesome one. Deception, selfishness, indulgence, bad-temper, cruelty and the like are easily imitated.

Another important avenue to training is that of suggestion. It is not recognised as much as it should be what an extensive influence suggestion exerts in the mental life of every one of us. We are prone to believe and rest contented that most of the decisions we form or the conclusions we arrive at, are the products of reasoned deliberation. In many cases the reasoning or rationalisation comes in afterwards to justify the thoughts

or actions prompted by suggestion. The more so in the case of children whose reasoning powers are undeveloped. As a matter of fact the child is nothing, if not suggestible. All kinds of unhealthy thoughts or modes of unhealthy behaviour may be suggested to a child through want of tact on the part of the parents. Infusion of fear in a child's mind and all methods of terrorising the child are to be deprecated as they tend to cripple the child both physically and mentally.

A point of practical importance in connection with suggestion is that it consists in the implantation of an idea into the subconscious mind and so, the removal of evil-producing ideas can best be effected by the implantation of healthy ideas which will counteract the power of the bad ones. Constant harping on the defects of a child would fix the corresponding ideas more firmly on the mind of the child. Fear should be dispelled by ideas conveying courage. Appreciation of small virtues tends towards good behaviour far more powerfully than persistent reminder of vices and faults. In other words, an ounce of compliment is far more effective than a ton of curses. The surest way of removing backwardness or inefficiency is to implant ideas of forwardness.

Another feature of a child's mind is that all children are curious and it is fortunate for them that they are. Had it not been for this normal trait in us we would not be what we are with all the inventions of our age which make life easy and delightful.

A father who loses patience at the numerous questions of his children has yet to learn the duties of parenthood. The child's questions are a craving on its part for knowledge and knowledge is as essential to the growth of the mind as sunshine, water and air are to a growing plant.

So a knowledge of the needs of a child and allowing its mind to develop along its natural tendencies is of utmost importance to its future well-being. We are accustomed to think of children being "spoiled" by kindness or over-indulgence. We forget that they may equally be "spoiled" by misunderstanding, carelessness, ignorance or neglect.

There is a tendency to over-rate the intellectual and underrate the emotional and instinctive features of a child's mental life. The ability of an individual to adapt himself to his surroundings depends quite as much upon his emotional habits and attitudes as upon the level of his intelligence.

Persons with a low level of intelligence do make a successful adaptation in life and earn a living while, on the other hand, individuals superior in intelligence are easily upset by minor emotional disturbances or mental conflicts.

The power of self-control is a priceless heritage of man which distinguishes him from the lower animals. There is no gift with which man is endowed that is as capable of expression as that of self-control and there is only one recipe for the development of self-control and that is self-discipline. Any discipline is good but self discipline is the only means whereby the mind is allowed to grow to its full measure and proportion. The child being imitative reacts to self-discipline on the part of the elders much sooner than to the discipline of the rod.

Sympathy on the part of the adults creates a similar attitude on the minds of children and takes their mind out of self-consciousness and self-interest. This mental attribute viz sympathy, has a beauty and grace of its own; it brings us in contact with our surroundings and helps us to adapt ourselves to our environment, which after all is the purpose of the mind. No mind can be really healthy unless its sympathy is mental numbness and in no case is numbness a healthy sign.

Among the factors that hamper the healthy actions of the mind are anger, fear, and useless small worries. These plug the principal part in depressing mental health and wasting mental energy. It is not the extreme types of these mental maladies but minor forms such as petty annoyances, baseless fears over small affairs, little angers about trifles of least importance that lead to great depression of mental and physical health.

The best way to ensure health of the mind is not merely by ensuring health of the body but to practise self-control in regard to the little things in daily life and to keep the idea of harmony and tranquility always before us. This method leads to great reserve of mental energy which could be drawn upon in the event of a serious disaster such as infectious disease or any other domestic or financial trouble.

Self-suggestion is a recognised mode of adjusting mental irregularities of all kinds. It involves the taking up of a new idea in the conscious mind with such force that it dominates the mind for the time being and expels all other ideas, antogonistic to it.

Properly understood and practised it is a useful means of regulating one's mental functions and maintaining the mental balance. It simply means the realising the morbid

character of one's thoughts and replacing them by appropriate health-giving thoughts. Practised persistently with regard to whatever kind of morbid thoughts one may, in course of time, change one's whole mental outlook.

Emotions of all sorts are proved not infrequently to play an important part in causing not only mental and nervous diseases but other bodily diseases as well.

It is not merely a serious mental shock such as overwhelming sorrow or dreadful calamity that brings about a physical break-down but daily and hourly irritations, annoyances, persistent fears and anxieties that wear out the constitution as drops of water do to a stone and everything that we can do to combat these morbidities will help to drive away misery and ill-health and contribute to greater peace of mind and better physical health.

ÆTIOLOGICAL FACTORS OF DIABETES AND TREATMENT

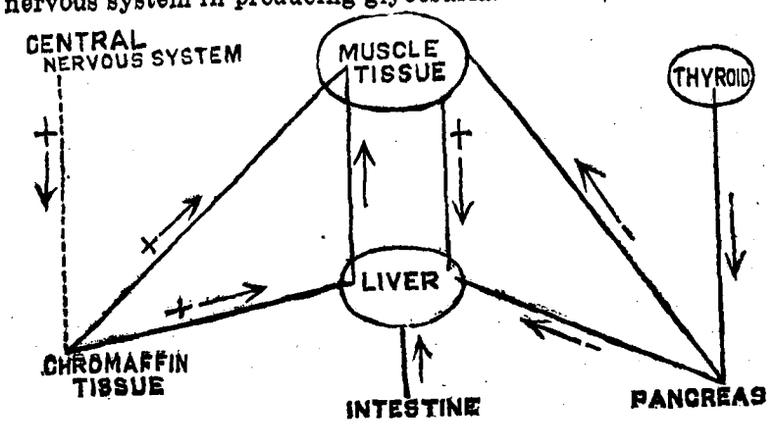
BY

KSHETTRA MOHAN GUPTA, M.B., M.R.A.S., CHIEF MEDICAL OFFICER, MOHISHADAL RAJ HOSPITAL.

Diabetes mellitus is a disease of metabolism. It is mainly a disease of the pancreas, resulting in deficient internal secretion and general inability to utilise glucose. The patient presents symptoms of progressive loss of weight, thirst, asthenea and hunger. Glycosuria in abnormal quantity, is a constant finding and remains to-day a crucial point in diagnosis and treatment. The immediate cause of this defect is functional or anatomical disease of the island of Langerhans of the pancreas, resulting in deficiency of its internal secretions. The more remote, or primary causes may be in the associated endocrine glands—pituitary, thyroid apparatus or adrenals—and the vegetative nervous system with which the functional activity of those glands is intimately related. Nervous and emotional disturbances resulting in glycosuria act through this endocrine-vegitative system. The mode of action of the pancreative hormone is unknown but there is evidence that it acts both in exerting an inhibitory influence on glycogenolysis or release of sugar from the liver, and in preparing for, or in some manner aiding in the utilisation of the dextrose molecule by the tissues.

The following diagram, a modification by Falta of Von-Noorden's scheme, is helpful in understanding the inter-relation

between pancreas and other endocrine glands and vegetative nervous system in producing glycosuria.



The line from the intestine relates to the impetus received from the intestine to the liver for the storage of sugar (from absorbed food.) The line of dashes represents nerve paths; the solid lines represent blood paths. The arrows show the direction of the excitation; the sign + or — behind them means whether the stimulus transmitted by the respective path increases or diminishes the activity of the organ in question, whether it acts assimilatorily or dissemilatorily.

Ætiology:—(1) Pancreas—deficient internal secretion. Experimental diabetes is produced by complete removal of the pancreas. It is invariably followed by glycosuria, irrespective of the food intake. The percentage of blood suger is increased. Acetone bodies are formed in the urine. Liver loses its glycogen and becomes fatty. Subsequently it was found that pancreatic tissue as little as one-fifth to one-fourth, is sufficient to protect the animal from diabetes. Dr. Allen states that clinical diabetes arises regularly on the basis of pancreatitis. Disease of the pancreas may result from acute or chronic infection or functional insufficiency may arise without known cause. Interference with the circulation or drainage from the ducts, obstruction due to gall-stones, focal infection of the teeth or tonsils, syphilis or pus-packets in any site, may be found to be causative.

(2) Primary origin in the nervous system. Naunyn held that disturbances of the nervous system are equally important as disease of the pancreas in causing diabetes. Claude Bernard holds the same view. Two types, differing in the character of the nervous symptoms are generally found. In the first type,

the psychic and nervous symptoms predominate. A constant hyper-excitability of a certain part of the sympathetic system seems to be present. The second nervous type is characterised by the predominance of the alimentary factor. In the later stages of both the types, there is evident the psychic and nervous elements.

(3) Congenital weakness of the embryonic groundwork of the islet-tissue, which makes the adult stand more susceptible to injury—infection, intoxication etc. This explains the rapidly-progressive grave diabetes in young children. Langdon Brown regards diabetes as a clinical complex. "Diabetes", he says "is a result of disturbance of the sympathetic—parasympathetic—endocrine system in which the metabolism of carbohydrates is but one phase.

(4) Obesity and over-nutrition. The observations of many fully confirm the remarkable association of diabetes with obesity and over-feeding.

(5) Heredity—appears to be a factor in the causation of diabetes.

(6) Some races seem to be pre-disposed to diabetes like Jews and Hindus.

Internal secretion of the pancreas is indespensable to the proper utilisation of carbohydrates, though its nature is unknown. It has an inhibitory effect on the release of sugar into the blood, as opposed to the action of adrenalin and related to to the thyroid and the pituitary in action.

Source of glycogen :—(i) Carbohydrates of the food are absorbed into the blood, as monosaccharids, principally as dextrose, which is stored in the liver and large muscles and liberated again as dextrose, for physiological oxidation.

(ii) Protein food in the process of splitting into the simpler amino bodies also gives rise to glycogen.

(iii) *Fats* :—The glycerol resulting from the splitting of fats is converted into glucose.

In fasting diabetics, when all food is withdrawn, the tissues are drawn upon and by resulting catabolistic process the body protein, glycogen and fat yield glucose which continues to be excreted in the urine. Glycogen is transformed into dextrose through the agency of the powerful diastatic enzyme glycogenose which is found in the liver, blood and lymph.

The regulation of this liver action may be through nervous pathways or, as is now the prevailing opinion, through hormone control. It becomes evident, therefore, that the failure of the cells of the different tissues of the body to utilise the

sugar in which they are bathed and which eventually reaches a high concentration, is the fundamental reason for the hyperglycæmia and the subsequent glocysuria.

Acidosis.—Acidosis is a general term descriptive of a disturbed relation between the acid and basic elements of the blood, in which the H + ion concentration is increased relatively at the expense of the basic elements. The sodium bicarbonate in the blood is of fundamental importance in maintaining the H + ion concentration requisite for health. Acidosis occurs in many conditions as a result of the accumulation of various acid substances and of depletion of the basic elements. The disturbed acid-base equilibrium is, in diabetes, due to the addition of two acids to the body fluids (i) beta-oxybutyric (ii) acetoacetic (acetone bodies). These acids are formed as a result of imperfect combustion of fat. The proteins also give rise to substances, which are converted into substantial quantities of these acids. In failure of sugar combustion characteristic of diabetes, therefore, the intermediate products of imperfect fat-oxidation accumulate and acidosis of a very grave kind develops.

TREATMENT.

The diabetic organism is apparently able to use a certain quantity of glucose as well as the non-diabetic, but when the lowered limits of utilisation have been exceeded, the percentage of blood-sugar rises and having exceeded a certain value, is excreted in the urine. The diabetic diet, then, must be so adjusted that the quantity of glucose is brought within the limits of utilisation, sufficient energy is produced, acidosis avoided, and the nitrogen equilibrium maintained. The education of the patient is important and should include as much information on the practical subject of diet and cookery as is possible, as well as instructions in the methods of making a simple test for glucose in urine. The patient must also realize that, with the reduction of his energy-producing powers, a re-adjustment in his habits of life is necessary and that a less vigorous, less active life is of the utmost importance. Exercise within the limits of the patients' capacity is desirable. It aids metabolism and contributes to the general well-being. The large muscles, store-houses of glycogen, are given work, which uses up glycogen, reduces blood-sugar, and may increase, in some degree, the sugar tolerance. The cultivation of a tranquil, placid state of mind and mental repose is very important.

INDIRECT THERAPY.

Dietetic treatment :—The basic, underlying principle of dietetic treatment is that of under-nutrition, which requires that in

addition to restriction of certain kinds of food (carbohydrate) the total quantity shall be reduced. The dangers of the old high protein diet are generally recognised. Protein yields not only a large percentage of glucose (58%) but it also yields a high percentage of acids capable of causing acidosis. So protein also must be limited to quantities sufficient to maintain nitrogen equilibrium. The under-nutrition principle is devised to give rest to the active secreting tissue, the islands of Langerhans. The diet is first adjusted so as to make the urine sugar-free. The additional food should be added gradually to the diet in daily additions of about 5 grams until the maintenance diet is reached—carbohydrates under the quantity sufficient to give glycosuria, protein in amounts to establish a protein balance, and fats in moderate quantities to give increased calories.

Allen Treatment:—(I) A preliminary fast until the urine becomes sugar-free. It may vary from one day to a week. (II) After an interval of 24 hours, during which no sugar has appeared in the urine, the first food in the way of green vegetables, in increasing amounts of 10 grams daily to the production of glycosuria, is given. (III) It is preferable to give a protein diet—as meat, fish, white of eggs with bran, biscuit, vegetables (boiled), agar jelly etc. The amount of protein varies with the severity of the case. In mild cases 60 grams and in very severe cases 10 grams. (IV) Carbohydrate is given as the next article of food, within the limits of utilisation. (V) Fat may then be added and may require a reduction of the quantity of carbohydrates.

Fasting affords rest to the pancreas. A day's fast at regular intervals (once a fortnight *i.e.*, on full-moon or no-moon) may be used as routine treatment. If not complete fasting, a greatly reduced diet may be taken on those days. The immunity of the diabetic to infection is markedly lessened and every patient should be instructed as to the dangers of injuries and infections of feet, fingers etc.

Woodyatt's view:—Woodyatt undertakes the problem of diet in diabetes from a different standpoint. He takes into account that the endogenous supply of glucose must be considered as well as the exogenous. It is evident that fat in the diet may avoid the consumption of the tissue fat and prevent too large catabolism of tissue protein. He concludes, that in fasting there is the danger that the body fat may be drawn upon to the extent that the subsequent body protein loss is so great as to weaken vital organs.

High fat-diet of Newburgh and Marsh:—They said in 1920 that there must be enough fat or carbohydrate in the diet to supply all the body needs for heat and energy, so that the protein may be used only for restoring body tissue. The ability of fat to spare protein cannot be doubted. They say that patients become sugar-free sooner if they are allowed a little carbohydrate and a relatively large amount of fat than they do if starved. Thus a high fat, low protein, low carbohydrate diet is ideal in the treatment of diabetes.

Maignon in France also prescribes a diet rich in fat and oil, and to guard against acidosis gives sodium bicarbonate concurrently.

Diabetes in children has always been recognised as grave. The treatment is the same as in adults but it should be borne in mind that acidosis develops much more readily in children and in view of their greater energy requirements and the importance of carbohydrates in preventing acidosis, the rigid restriction of the diet, particularly of the carbohydrate, is dangerous.

DIRECT THERAPY.

It is evident that dietetic treatment, no matter how well selected and balanced, simply brings the work of the island of Langerhans within the limits of their functional capacity and permits of a possible, gradual, spontaneous up-building of this capacity, but it in no way exercises any specific therapeutic effect in restoring the injured islet tissue. The effective treatment of diabetes, therefore, should include measures for rebuilding the diseased insular apparatus and increasing its internal secretion. The active principles found in the pancreas are the only known substances that act through the pancreas in substituting for its failing internal secretion and in rebuilding its active secreting tissue. Hence, a pancreas preparation (there are so many in the market) should always be used along with the dietetic treatment of diabetes in order to get satisfactory results at an early date.

INDIGENOUS DRUGS

BY

J. C. GHOSH, B. Sc., F.C.S.

The last War emphasised the great need for paying increased attention to the cultivation of drugs in India, and sometimes there were signs of a rapid extension of this branch

of agriculture. Those who have studied the question have no doubts about the possibilities of indigenous drug culture. In the Government cinchona plantations the possibilities have been practically shown and Major Gage, I.M.S., late Director of Botanical Gardens, advised the Indian Industrial Commission that, "given the necessary staff and equipment, it should be feasible to undertake the systematic cultivation of any of all these chief species and the improvement, where desirable, of the quantity and quality of the yield."

There are innumerable drugs in India, but up to now there has been no regular cultivation of indigenous drugs, and even those grown successfully are not collected at the proper season and according to strict procedure. There are some firms which have made a beginning, and in the areas directly under their charge, success has attended their efforts. But for the most part the only organised cultivation of drugs is carried on in the gardens under Government supervision. This may be quite natural in such a conservative country as India,—but the Government cannot ordinarily be expected to do much more than carry on experimental gardens, the duty resting with the public to take up the matter and to invest sufficient sums of money in the industry.

It was pointed out in the writer's pamphlet on "Indigenous Indian Drug" published in 1919 by Butterworth that practically, all drugs found in the British Pharmacopœa could be grown in India, and that more than 50 per cent. of them are indigenous to India. It may be mentioned that India possesses a very rich flora containing many plants which have been utilised and are still being used for medicinal purposes. Some people hold that many of these have been employed more from traditional choice than from an acute scientific demonstration of their virtues. The fact may perhaps be otherwise. Owing to the vicissitudes through which India has passed and having regard to the antiquity of her civilisation, it is quite possible that the scientific work which lay behind the medicinal use of these plants, has been lost as may have apparently been the case with regard to most of the truths in respect to plant life, which were known to ancient india, and which are now being re-discovered by Sir J. C. Bose. Similarly, we may proceed with the research as to the therapeutical value of reputed medicinal plants and the lines on which this research should be carried on may be as follows. *First* there are drugs to be tested, which are of established medicinal value in Western medicine and which are in

use in the pharmacopœias of different countries. A large number of these grow wild in great abundance in many parts of India and some are even cultivated. There are numerous examples, but a few will suffice. Atropa Belladonna (Angur-i-shefa), *vide* pp. 20-21 of the writer's booklet on "Indigenous Indian Drugs" (Butterworth), grows in abundance in the Himalayan ranges (Kashmir) at an altitude of 6000 to 12000 feet. Strychnos Nux-vomica *(Kuchila)*, one of the most commonly-used drugs, grows everywhere throughout the tropical parts of India. Glycyrrhiza glabra *(Mulatthi* or *Jesthimadhu)* and Citrullus Colocynthis *(Indrayan* or *Makal)*, grow in north-western India. Aconite *(Katbish)*, Junipar, Digitalis and Squill grow in the Himalayas. Most of these have been tested and found to be as good or even better than the drug in use.

POTENT HERBS.

Secondly, it may be considered whether there are drugs which contain the same active principles as those we now use. Thus Artemesia Maritima *(Titwan)* grows abundantly in Kashmir and contains the expensive santonin as its active principle. Already a good deal of work in this connection has been done by Professor Greenish and by Dr. Simonsen. It is also understood that a factory for extraction of santonin on commercial scale was started at Kashmir. Probably there are other herbs just as potent which have never come to light and these may be without the drawbacks which some of our present drugs possess.

At the Calcutta School of Tropical Medicine, it has been proved by Major Chopra and his colleagues that Boerhaavia Diffusa *(Punarnava)*, which was used both for lung and kidney diseases, is no good in the former condition, but has a very valuable diuretic action in certain cases of dropsy. Similarly at the School of Chemical Technology, Calcutta, Allium Sativum *(garlic)*, and Allium Cepa *(onion)* were subjected to tests since 1919 and the results thereof published in 1922 and 1925 as to their specific expectorant action. The drug has also the bactericidal effect as well as the readiness with which its active principle, namely, volatile oil, is excreted through the lungs, thereby proving its usefulness in infective diseases of the respiratory system, such as pneumonia, pulmonary tuberculosis, etc. It is by such careful and systematic work, by testing the action of the drug first in the laboratory where its actions can be seen on the various tissues of the body, and then by actual clinical work, the action of the drug is proved on the patient.

Thirdly, we can economise by substituting drugs which though not exactly the same, have similar properties and action resembling those of the imported and often expensive remedies, Picrorhiza kurrooa *(katki)* of which several species grow in the Himalayas, and Picrasma Quassioides are as good bitters as the imported articles Gentian and Quassia respectively. Ipomœa Hedracea *(Kaladana)* and Ipomœa Turpethum, *(Tribrit)*, the Indian jalap, are as active as the ordinary jalap used.

CRUDE DRUGS.

Several species of plants yielding good peppermint oil grow in the temperate Himalayas and on Nilgiris. Many fresh plants may be used as greens instead of the expensive active principles obtained from them. This is a matter of moment in India, as many of the inhabitants are so poor that they cannot afford to buy the common drugs such as quinine, castor-oil and Epsom salts. In Western medicine there is a tendency to utilise only the active principles and for this the taking of the drug through various stages of purification increases the additional cost. Major MacGilchrist and Major Acton have shown that the total alkaloids from cinchona bark (cinchona febrifuge) are more efficient than the purified but costly quinine. This reduces the cost of treatment to less than half.

Fourthly, there is a vast field for investigation in respect of the drugs which are of known value in Ayurvedic, *Unani* and other indigenous systems, but which are not yet used by the Western systems. In all the rich foliage of India and amongst those herbs used by the leading *kabirajs* and *hakims*, there must be many new preparations, which are at present not more widely known. Major Chopra's work has made this clear in the use of *Punarnava* by his pharmacological and clinical tests. There are two varieties of *Punarnava*, namely, the *red* and *white*, and the latter only (*Swet Punarnava*, Trianthema Monogyma, *vide* Sir P.C. Roy's "Hindu Chemistry"), is of therapeutic value. This was long-known in India and modern scientific investigations afford the verification needed.

CHEAP TREATMENT.

The action of drugs can be tested scientifically and exactly only when their active principles have been extracted. This involves laborious work and the results take a considerable time. When once this exact knowledge has been obtained, the use of crude drugs happens to be the key-note of cheapness and will have to be employed among our population for many years to come. At present, the aim of superior training in Medical Colleges seems to be to turn out specialists with academic degrees who require Rs. 8 to Rs. 32 a visit and who prescribe treatment equally expensive. What the ryot requires, is a qualified practitioner who is willing to treat him for eight annas and for the treatment to cost two annas.

PHARMACEUTICAL CHEMISTS.

Indian pharmacology has a great future before it and the Indian population should welcome the way that has now been shown by the work which is being carried on at the Calcutta School of Tropical Medicine on a magnificent scale, but almost *incognito* and on a humble scale at the School of Chemical Technology, Calcutta. No better example can be given than the discovery and application of the ethyl esters of hydnocarpic acid, the active principle of chaulmoogra oil, by Sir Leonard Rogers, which has now produced beneficial results in the treatment of leprosy. It may, however, be mentioned that apparently before Sir Leonard adopted this treatment, the use of hydnocarpus oil for leprosy treatment in preference to other varieties of chaulmoogra, and the real efficacy of hydnocarpic or chaulmoogric acid as opposed to gynocardic, had been shown in the writer's pamphlet on "Chaulmoogra Oil" published in 1917. The writer also tried to prove that the hydnocarpus oil itself instead of its ester and that combination with the active principle of catechu would be more effective in leprosy. There is ample room for further researches to be carried on as shown in the pamphlet referred to and it remains for an institution like that of Tropical Medicine with splendid facilities to push on these researches. The scientific examination of drugs is a laborious process in which the chemist plays as important a part as the medical man. At present, this has not been realised by the medical profession in India and, consequently, little provision has been made for them in research schemes. A larger staff of pharmaceutical chemists and a wider co-operation of these trained men, as explained elsewhere in this chapter, are, therefore, needed if any rapid advance is to be made and the work to be carried on at the same standard of efficiency as in other countries. There are many rich and patriotic Indians who, if they were aware of the value of work in connection with indigenous drugs, would help to make India self-supporting so far as drugs are concerned. It is by work of this type that we hope to see some day established an Indian Pharmacopœia

depending mainly upon indigenous sources of supply formulated and adopted to the special requirements of this country and bringing medicine and the healing art within the means and the means and resources of the masses of India.

DRUG CULTIVATION.

Turning next to the question of scientific cultivation of drugs, we find that the cultivation of cinchona for quinine is a well-known example of drug culture, an industry which affords a great opportunity for those interested in the subject. The importance of this line and its scientific value were first brought to notice in the writer's booklet already referred to and was widely appreciated as evidence in the Editorial Reviews published in the February to March 1919 in the *Lancet*, the *Indian Medical Gazette*, the *Statesman* and even in *American Medical Journals*. That the supply of quinine is not at all equal to the demand, was made clear during the past few years, which have seen a great increase in price. Not only is it cultivated in the Nilgiris, but in several other parts of India valuable supplies are yearly available. The importance of quinine to this fever-stricken country cannot be challenged. Then, Belladonna, a typical example of an important group of anodynes, grows well in the Western Himalayas, from Simla to Kashmir, the plant yielding about 0·4 per cent. of alkaloids *hyocyamine* and *atropine*. Belladonna is being grown in the Darjeeling area and a supply giving the same amount of alkaloidal content was obtained by the writer from the Mungpoo garden. Digitalis is acclimatised on the Nilgiris, where it grows with little attention, while experiments are being conducted in the Botanic Gardens, Calcutta, with a view to developing the supply. Ipecacuanha has been raised with some success in the various hill stations of India, and it has been proved that it only requiries care and attention to raise it in sufficient amount to make it commercially remunerative.

Emetine which is one of the alkaloids of ipecacuanha, a small plant belonging to the same N. O. *Rubiacea* that yields *quinine*, is practically a specific for amœbic dysentery, a disease very common in this country. The value of this drug is being increasingly realised and a large supply ought to be available for use. It is some forty years ago since this plant was introduced into India, but since that time, under the care of the manager of the cinchona plantation in Darjeeling district, it has already developed, it being estimated that there are now over one hundred thousand plants in that plantation alone. It is expected that it will soon be possible to manufacture *emetine* on a commercial scale.

NEED FOR AN EXTENDED SURVEY.

It will first be necessary to carry out a more extended survey of the possibilities of drug cultivation in India. The Government may perhaps be expected to give very liberal assistance to such work, but it is imperative that private individuals (including zamindars and states, or companies should show their readiness to co-operate. When the field is surveyed, it will be possible to take steps towards the proper measures for bringing the drugs up to the standard demanded by pharmacopœias. It is here where failure is very apparent in the present trade in drugs. The variation in the quality of wild-grown drugs is a serious drawback to finding a profitable market therefor. For instance, Prodophyllum Emodi, a plant discovered more than thirty years ago in India, though identical with the American drug used for medicinal purposes, remained unrecognised till 1914 by the British pharmacopœia for the simple reason of variation in active constituents.

In the matter of climate and environments, the greatest trouble and care must be taken. At the present time the drugs are simply placed on the market and brought up by dealers without submitting them to any tests. They do not know the age of the drugs, or whether they preserve their medicinal properties. It is easy to see that there will be little prospect of advocates of Western medicine taking kindly to Indian-grown drugs if the cultivation and preparation are not carried on systematically and according to acknowledged standards, under the supervision of men who have undergone a thorough training in pharmaceutical chemistry and pharmaceutical botany.

CHEMISTRY AND HEALTH.

LACK OF LEGISLATION.

Reasons for the existence of widespread adulteration. Writing to a Calcutta newspaper a correspondent made very pertinent remarks with regard to the dairy industry and dairy produce in India. He rightly observes that the principal reason for the existing unsatisfactory condition of the dairy industry in this country is lack of legislation to protect the up-to-date scientific dairy-man from competition with the people who do not understand the most elementary principles of the theory and technique of their vocation.

He tells us that "there is no legal standard, that the system of inspection and analysis that is in force, is haphazard and incomplete and is consequently worse than useless and that our legislators need not fear that in passing laws they will be raising the prices of milk and ghee." All right-thinking people will no doubt agree with him that "to encourage science and capital into the diary industry there must be such legislation as will effectively prevent the sale, as pure butter, of a concoction of butter, fat, banana or potato flour." This legislation will accelerate the scientific training of uneducated dairymen and will be a step forward for popularising technological training among the masses.

AMATEUR ANALYSTS.

Inadequacy of provisions for preventing adulteration. These remarks apply not only to dairy products but to all articles of food and drugs. It is true that provisions have been made in the new Calcutta Municipal Act of 1923, Chapter XXVIII, sections 405-25, to check adulteration in these lines. But these provisions are restricted to Calcutta Municipal limits whereas the trade of a town is chiefly dependent on supplies from outside. Moreover, adulteration cannot be prevented by amateur and improvised analysts who look up to something else as their normal vocation.

OVER-BURDENED MEDICAL CURRICULUM.

Difficulties in the recruitment of analysts from the medical profession. It is a phenomenon, perhaps peculiar to India alone, to expect medical practitioners to be analysts without sufficient previous chemical qualification. There is a further drawback out here in the recruitment of analysts from the medical profession. Indian Medical Colleges are at present so over-crowded that *ordinarily* it is hardly possible for one to obtain admission unless he is a B. Sc. or preferably an M. Sc. This rule may be changed; but coupled with a long preliminary training which is hardly called for and which is consequently a wanton waste of time and money, the hardest and the prolonged course which awaits him at the Medical College, is so taxing to his body and brain already wearied in most cases by over-work and other causes that an average medical graduate 'on emerging from his ordeal' is often worthless professionally according to the editorial article of the May 1924 issue of the Indian Medical Gazette which writes.—"The medical course at the present day is so overburdened that few, even of the best students, emerge

with a clear conception of what they have been taught, while the average student has confused ideas and is unfitted for his life-work." If the result is so disappointing as regards his medical work which absorbed more than 80 per cent of his time and attention during the long six years' training, his chemical efficiency, judged by this standard, will be far more disappointing and hardly deserves mention. The Indian Medical Gazette article concludes with the suggestion that the entire medical curriculum should be surveyed afresh and ruthlessly cut down where it is possible, to do so without it, is understood, lowering the standard of medical education, and that a course of study should be mapped out which will include only the most essential matters.

ANALYSTS AND PHARMACISTS.

Analysts to be armed with a special chemical qualification. In these circumstances it seems to be preposterous to think of the appointment of a medical practitioner as analyst without a special chemical qualification. Each line is a specialised one and one is not meant for the other unless we are prepared to sacrifice time, money and energy and to re-build anew. Smilarly the University science course of a B. Sc. and an M. Sc. relates purely to general science under existing arrangements and includes almost nothing of the practical subjects, such as Pharmacology, Bacteriology, Applied Chemistry and Applied Botany, which are absolutely required for the qualification of an analyst. Further, there is the question of salary that may reasonably be offered to a municipal analyst in the country. If it ranges between Rs. 100 to Rs. 200 a month, a qualified medical graduate, with his prolonged preliminary and subsequent medical training can hardly be expected to be an analyst conscientiously and to remain debarred from private practice. Other considerations apart, it is extremely advisable from the standpoint of salary alone that quite a distinct and selected course of study should be adopted, which a capable matriculate may undergo to qualify as an analyst or as a pharmacist—professions which are well-recognised and which enjoy statutory status in almost all civilised countries except in India and which alone will remedy the evils complained of by the correspondent referred to in the opening paragraph.

DEVOTED CHEMICAL WORKERS.

Importance of chemistry for public health work and for any development scheme.—In two previous articles, the importance of chemistry

in respect to vocational education for promoting agriculture, sanitation and industries has been dealt with. In the present article stress is given to that aspect of chemistry which is concerned with health, particularly with foods and drugs. The work connected therewith calls for a devoted class of analysts and pharmacists. There are thousands of them outside India, who earn their decent livelihood from their professions both independently and as public servants, and who constitute an efficient body of scientists, contributing their share of researches towards the progress of science and holding their own against general competition for honours and distinction. There may not be money in the country for Municipalities, District Boards and the State to shoulder the responsibilities alone. But private enterprise, backed by legislation whenever necessary, may be freely encouraged to create out here these classes of chemical workers who will form valuable assets in any development scheme. A class of mechanical workers and artisans are necessary no doubt. But the brain of a nation lies in the application of science to the development of industries and in scientific control. Indian students show particular aptitude for scientific research and if their energies are once directed in proper channels by judicious educational schemes and legislative measures, unemployment and discontent will disappear and the country will progress by leaps and bounds.

CASES AND COMMENTS.

TREATMENT OF PERSISTENT HICCOUGH

BY

P. D. SAMUEL, L.C.P.S., C.B.M. DISPENSARY, PARLAKIMEDI.

It is with great interest I read the articles on persistent hiccough in the "Antiseptic" as well as in the "Indian Medical Gazette," as I myself had to treat a similar case recently. Previous to this, I treated two more cases but they are not so persistent as this.

1. A woman, aged thirty, frequently suffered with hiccough during pregnancy. Her husband used to come for medicine once in 2 or 3 weeks. Soon after she took the digestive mixture, she had relief but it used to appear again and again.

So the medicine was continued till the confinement. She never had this during her previous pregnancies.

2. A retired head constable, aged 48, had suddenly got hiccough, without fever or any other complaint. I treated him as above, considering it to be due to indigestion. But the very medicine gave no relief and it took 10—15 days for a complete cure.

3. The third case is quite parallel in symptoms and treatment with Dr. R. Ch. Panda's experience published in the "Antiseptic" for Nov. 1925.

I was called to see a patient in a village who had high temperature (103°), constipation, cough, headache, pain all over the body and sleeplessness. Since seven days the patient was having remittent type of fever and on the 8th day the hiccough made its appearance. His sleep was disturbed and he couldn't take even liquid diet freely. Being villagers, they already employed a native doctor who administered several medicines and none of the symptoms abated except constipation. Having seen that it was pure malaria, I gave first an injection of Quin. Bihydrochloride gr. 10 intramuscularly and the digestive mixture for hiccough. Fever subsided entirely but the hiccough was so persistent that the patient had no sleep nor proper nourishment on that day. Next day I discontinued the digestive mixture as it gave no relief but, on the other hand, it caused burning sensation in the stomach due to its action on the empty stomach, and gave an hypodermic injection of morphia gr. 1/4 which acted only as an hypnotic but hiccough did appear at long intervals. Then I tried Dr. Panda's apomorphine injection on the third day which gave a great relief to the patient as well as to the anxious relatives. When I saw him next morning, he was sitting in an easy chair and cheerfully chatting. To be on the safe side, I gave another apomorphine injection that it may not recur. With that he was completely cured.

The treatment for hiccough by D. G. Chaurikar in the "Antiseptic" for March appears to be simple and worth trying. I shall try this also if I get another chance. Because in ordinary dispensaries and hospitals we cannot have X-rays for examination as suggested by D. M. Ghose in the Indian Medical Gazette for March 1926 nor can we give novacaine injections into the phrenic nerve accurately. Much more difficult is the unilateral or bilateral phrenicotomy advocated by Krch.

A CASE OF HICCOUGH

BY

S. ROY, HAZARIBAGH.

Dr. D. G. Chourikar's "A case of hiccough" in the March issue of the Antiseptic prompted me to write the following, although of no special interest. Hiccough, as is known, is due to the sudden contraction of the diaphragm, which may be excited by very many causes either direct or indirect. The treatment of this condition is tiresome if the cause is obscure but where this is not the case it is amenable to treatment.

Lately on 9-2-26 I came across such a case. Bhatua Goar of Gajodih, a healthy well-built, Hindu male, aged about 48, consulted me for persistent hiccough for the last three days, which kept him in bed and awake throughout. He got diarrhœa and vomiting before the present affection. I could find nothing abnormal in his chest or elsewhere.

My impression was that it was due to reflex irritation from the stomach as he had vomiting before. Accordingly my treatment was—

i. Mustard plaster over the stomach.
ii. Sodii bicarb ... gr. xv.
Spt. aetheris ... m x.
Tr. card co. ... m x.
Aqua chloroform ... ad oz. i.
Mft. mist 6 such, every three hours.
iii. Thin barley water.

I was told the next morning that he had slept for about an hour but the hiccough still persisted though at intervals. The same mixture was continued for the next two days after which, I found him alright.

A CASE OF MULTIPLE PREGNANCY

BY

R. K. RAJAGOPALAN, SHRAVANBELGOLA.

A midwife, attached to this dispensary was called upon to attend a case of delivery to a village, a mile off, on the morning of the 5th March. Pains, it seems, began some 2 days prior to it and the case is one of primipara with legs and face slightly swollen.

In the noon, on the same day a male child was born which saw a mature one. In the evening, the midwife came and

reported that the uterus has not diminished in size and the placenta has not yet been delivered.

Ergot mix. was sent and on the same night another somewhat matured baby was born having a placenta for both the babies. Everything went on well with the patient until on the 11th day she got slight pains and delivered three immature shrivelled up babies one in the morning, another in the noon and the other in the night.

The first child was alive for 2 days and died and the second child died soon after it was born. The case has been cited as it is one of the rare ones.

A CASE OF TRIVIAL ABDOMINAL INJURY WITH GRAVE SYMPTOMS

BY

DR. N. LAKSHMANA IYER, M.B., & C.M., NAGARCOIL.

I have great pleasure in recording the following case not because of the seriousness of the injury or the great difficulty in the matter of treating such a case. This case simply records the strange experience of any one who is in active practice. I publish the case with the hope, that it might be of use to the younger practitioners, who form a portion of the readers of your valuable journal.

The case illustrates, how the situation of a wound, the mentality of the patient etc.] might influence the general condition of the patient after receiving an injury. The patient S. P. (out-patient number 10527 of 1925), a motor driver, was stabbed in the epigastric region of the abdomen in a scuffle, at about 0-45 A.M. on 8-2-25. As the patient was slightly tipsy at the time of receiving the injury, he did not actually realise that he was injured. He ran after his assailant for about 100 yards, when he noticed that he was bleeding. Then it was that he examined his body and found that he was stabbed on the abdomen, and this fact gave him a severe shock. He was put in his motor car and brought straight away to my house at 1-15 A.M. He came walking, supported by two friends up the pathway from the gate to the verandah in front of my house and collapsed into an easy chair, crying out "save me doctor, save me." On examination it was found that the patient's general condition was very bad. He was cold with a slight shivering and barely perceptible pulse, complaining of giddiness. There was also a cold sweat all

over the body. As I was anxious that he should not die in my house, I hurriedly enquired into the matter and directed that he should be taken immediately to the hospital which was about half a mile off, and the car be sent back to take me. I also sent instructions to the men on duty at night to have everything ready for the emergency and to give the patient warm rectal saline.

The car returned in ten minutes to take me, and I got in. On my way I picked up the local magistrate also in case any dying declaration had to be recorded. We soon reached the hospital. There the patient was ready on the table to be dealt with. In the meantime the saline that was ordered had not been given. On enquiry I was informed that the patient refused to be touched by any one except the doctor and on questioning the patient he confirmed this.

To my entire surprise the patient's pulse had improved a good deal, the cold perspiration had abated, he was warm and could talk more freely. In fact, in the course of about half an hour or so there was a sense of well-being on the part of the patient, which surprised me very much. I explored the wound very carefully. It was a transversely placed stab wound of about ½ to 1 inch in length and about ¼ inch broad, situated midway between the ensiform cartilage and the umbilicus. There was no trace of any penetration into the abdomen, nor any protrusion of the omentum or other abdominal contents. Though at home I suspected concealed internal hæmorrhage, the patient's condition on the table did not warrant such a conclusion. On the other hand, his general condition was getting more and more normal.

On exploration, the wound was about one inch in depth, (patient slightly fatty), and the peritoneum was not wounded. The wound was carefully disinfected, and a single stitch was placed to close it, and dressings were applied.

In spite of all earnest persuasion to remain in hospital, the patient insisted on going home, and he was allowed to do so. He was warned to be very careful and to come to the hospital should any symptom of trouble recur. He was also forbidden to take any solid food.

The magistrate who accompanied me had no need to take any dying declaration but he recorded a statement from the patient. On the ninth day, the patient sent word to me to go and see him in his house which I did. His wound was perfectly healed and the suture was removed.

In this case, to start with,

1. The patient was tipsy.
2. He did not perceive that he was stabbed.
3. When he began to recognise the injury he collapsed.

Was the shock produced by the stab on the epigastric region (region of the solar plexus) or was it purely mental when the patient was getting sober (fear)? My own conviction is that it was the latter.

AN INTERESTING CASE FOR DIAGNOSIS

BY

DR. R. V. GAJENDRAGADKAR, ASST. SURGEON, CIVIL HOSPITAL, OSMANABAD.

A Hindu male of 45 years old named Rang Rao, Police Patel of Rangani Taluka Kallam and inhabitant of Siradhone came to the hospital for treatment.

Previous History :—About 8 months back the patient raised his right arm suddenly in his sleep when he felt slight pain in the shoulder. Next morning, there was swelling of the size of a betle-nut on the shoulder about 2" from the arm-pit. He applied Indian marking nut to it, but it increased in size day by day. He was treated by many native hakims with some native drugs to apply over it. Being not relieved, he came to the hospital for consultation and treatment.

Present History :—There was swelling of the size of a big orange on the external side of the right arm extending from the deltoid insertion below to the acromion process above and sideways from the front of the arm-pit to the back of it. On palpation there was fluctuation just like an abscess. It was painful on pressure, red in colour, and hot to the touch. On auscultation, there was neither bruit nor expansile pulsation peculiar to an aneurism. So it was diagnosed provisionally as sub-pectoral abscess of the arm.

Technique of the operation :—After the necessary preparation of the patient for operation the patient was put under chloroform and the abscess was opened layer by layer. As soon as the fascia was cut, a gush of serum and blood gushed forth from the wound. The opening was enlarged to 2½" and all adherent to the sack was removed. The content removed was creamy like semi-solid substance amounting to 1 lb. nearly, but the bleeding was very profuse. The anxiety felt at the sight of the unexpected and severe bleeding can better be imagined than

described. It was coming from the lower portion of the wound. It could not be stopped by tight ligaturing of the arm. The wound was tightly packed with a sterile gauze and firm bandage was put as the pulse was failing. The cavity was about 6-8" below and internally and 2-4" externally. After an hour, there was bleeding, soaking all the bandage. Another firm bandage was put which stopped further bleeding. But the arm became swollen due to venous congestion. 18-3-26.The following mixture was given. :—

Ext. Ergat liq zss.

Spt. ammonic arom zss.

Aqua chloroform oz. iii.

19—3—26 The dressing was removed under two firm ligatures, one above, the other below. The whole dressing was wet with blood. After removing the plugged gauze and the blood clots there was bleeding again which continued even after digital pressure over the brachial artery. So the sterile sol. of calcium chloride 1 in 60 was poured after swabbing away the blood which stopped the bleeding. The gauze soaked in the same sol. was packed in and a bandage was adjusted.

The following mixture was given :—

Mag. sulph ziv.

Calcium chloride grs xxx.

Aqua chloroform iii, oz one T.D.

Quinine pills 3, one T.D.

20—3—26 There was a slight smell and so boro-idoform dressing was done. No bleeding and no temperature.

25—3—26 The removed portion of the tumour (creamy-like mass) was removed about 4-5 oz. There was again bleeding and so it was packed tight. The patient is under treatment and I hope he will make uneventful recovery. The interesting points of the case in my opinion, are as under :—

(1) It was not an aneurison as it was not a place for it and there was no bruit or expansile pulsation peculiar to an aneurison. Moreover, there was no difference in the rhythm, volume etc., in the pulsation of both the wrists.

(2). (a). It was not a hæmatoma as there was not only evacuation of retained blood in the cavity, but fresh, continuous bleeding from the wound. (b) There was no history of any injury.

But the blood coming out of the wound was arterial.

Was it a varicose aneurison ?

Will any of my professional brothers oblige me by their diagnosis along with the reasons ?.

SOME INTERESTING CASES

BY

PHARUBUSHAN MUKHERJEE, DARBHANGA.

1. A Mahamedan girl, aged 15, came under my treatment in January last.

She complained of pain in the larger joints of the upper and lower limbs. Thinking it to be rheumatism I gave her a mixture containing sodii salicylas etc. After a few days course, she having derived no benefit from the drug, I examined her tonsils and found her suffering from tonsillitis, which is one of the causes of rheumatism. Consequently, I prescribed the following medicines for her.

(a) Rx—Pot. chloras gr. v

Tinct. feri perchlor. mv

,, Belladonna mv

,, Nucis vom. mv

Aqua m pip ozi

Mft. mist i. Send 6 such

Sig—one thrice daily.

(*b*) Pot. chloras to gargle in warm water twice daily after meals.

(*c*) Pig. mandl to apply to the throat.

After using the medicines for a fortnight the patient was cured.

2. A Hindu Brahmin, aged 45, came under my treatment in July 1925.

He had been suffering from lumbago for a long time. Taking it to be arthritis, at first I injected morphine locally. But after a few injections, he having derived no permanent benefit therefrom was given intravenous injections of sodii salicylas and a mixture containing the same drug. The latter also failed to produce any effect and in the meantime, the patient began to complain of pain and swelling in the gums which were examined and the patient was found to suffer from " pyorrhœa alveolaris."

Considering pyorrhœa to be the cause of his long-standing arthritis the following treatment was adopted—

(*a*) Emetine hydrochlor gr ½ was daily injected hypodermically and in this way twenty injections were given.

(*b*) He was advised to get his teeth scraped and cleaned by a dentist which he did.

(*c*) He was directed to clean his teeth twice daily after meals with salt and mustard oil.

(*d*) Tinct. Iodine was given to him to apply to the gums.

(*e*) Rx—

Tinct. feri perchlor	...	m x.
Pot. chloras	...	gr v.
Mag. sulph.	...	3 ss.
Tinct. nucis vom.	...	m v.
Aqua m pip.	...	oz i.

Mft. mist i. Send 6 such. Sig. one thrice daily.

Everyone will be astonished to learn that the chronic rheumatism from which the patient had been suffering for several years rapidly improved under the above treatment and why? Simply because the root cause (pyorrhœa) was carefully attended to and removed, while previously lots of iodides and salicylates proved futile.

3. A Brahmin boy, aged 12, came under my treatment in November 1925.

The boy could not raise his right arm above the shoulders.

This sort of stiffness of the joint is due to chronic rheumatism or fibrositis or inflammation of the fibrous tissues around the joint. The boy was treated by many doctors but none could afford relief.

Is it not wonderful that the condition was cured by the administration of a gargle only to the boy?

Oral sepsis or septic condition of the mouth is the chief cause of such a condition.

4. An old Brahmin, aged 60.

This patient had been suffering from lumbago for several years. Six months before he died he could not raise his arms above the shoulders. None could relieve him.

On examination of his teeth it was discovered that all his teeth were diseased or he was a chronic sufferer from 'Pyorrhœa alveolaris' on account of which, both his tonsils were enlarged and diseased. Ultimately, this patient was attacked with 'cancer of the tonsils' and died from the effects thereof.

One can easily imagine how dangerous it is to keep the mouth unclean.

5. A Mahomedan male, aged 45, was suffering from asthma for a long time. Neither injections nor medicinal treatment could cure him.

He went to the Civil Surgeon who, after examining his teeth, extracted several of them.

Miraculously the patient thenceforth was relieved of all the symptoms of asthma although he grew angry with the Civil Surgeon because he took out some of his teeth.

Conclusions:—

It will be apparent from the foregoing cases that in all of them the diseases were due to a septic condition of the mouth—either unclean teeth or diseased tonsils—and when this was attended to, the symptoms of the secondary diseases also ameliorated. Generally it happens that physicians, although well aware of the causes and origin of diseases, often overlook them and consequently become unsuccessful in their cases. My object in writing the present article is to request my fellow-brethren to carefully examine the teeth and tonsils before proceeding to the treatment of diseases arising from a septic condition of the same and to bear in mind that 'oral sepsis' now-a-days is the root cause of very many of the diseases.

In the January '26 issue of the Antiseptic, Dr. J. C. Bagchi, Durgagang, Purnea, by curing an interesting case with atophanyl injections wanted to know whether any of the readers had got the opportunity of treating such a disease.

In my humble opinion, which may not be satisfactory to the readers, I can say that the woman in question was suffering from rheumatism and consequently was so readily relieved by injections of atophanyl which contains sodium salicylate as its ingredient, since patients in the outdoor, suffering from rheumatism, frequently complain of burning pain in the palms and soles, while it becomes extremely difficult for the physician to elicit the most important symptoms of the disease viz., pain in the joints.

Secondly, the patient might have functional disorder of the liver which has for its symptoms burning sensation in the palms and soles. These did not yield to cholagogue mixtures, etc., while they were promptly relieved by atophanyl containing sodii salicylas—a prompt pain-reliever.

Thirdly, the patient might have been suffering from neuritis (peripheral) which arose out of a rheumatic pre-disposition and rapidly ameliorated under atophanyl injections.

The readers will kindly enlighten me with further information on the subject.

In reply to the query by Dr. R. Ch. Panda in November' 25 issue of the Antiseptic as to the treatment adopted in any obstinate case of hiccough, I like to draw the attention of the readers to my 'Therapeutic Notes', published in May, 1924 issue of the Antiseptic, in which I mentioned that in an obstinate case of hiccough which lasted for a week and proved refractory to all sorts of treatment—by medicines or by injections, a single dose of chloretone, gr x, wonderfully checked the paroxysms. The patient was an old man of 55 suffering primarily from painful enlargement of the liver. Morphine, preparations of opium and bromides were tried but to no purpose till at last chloretone cured it as if by magic. Since then, I had had occasions to treat many cases of hiccough and in all of them I administered chloretone but none of them returned to me for further treatment and I believe, all have been cured.

I entreat my fellow-brethren therefore, to try this simple remedy in all cases of hiccough and report the result in the Antiseptic.

AN INTERESTING CASE OF JAUNDICE

BY

P. R. GOVINDA PILLAY, JOHORE BAHRU, MALAY STATES.

The patient was a female named Amurtham, aged 38, having a child of 3 years old. She came newly from Malacca and was working for a few days and as she did not go to work she was brought to the hospital.

I found the following symptoms. Her eyes and tongue were yellow in colour and the tongue coated. She said that she felt giddy when she walked and also she could not see

anything in the evening from 7 to 9. Her bowels were moving three or four times a day and had loss of appetite and anæmia.

By examination.

Hæmoglobin 25—30 %.
Urine—albumen nil.
Sugar nil.
Sp. gravity 1010.

The treatment I have given was as follows :—

Rx. Calomel gr. iii.
Soda bicarb gr. v.

At bed time and during night she had a temperature of 100·2. Early morning she was given a white mixture. The same morning, after white mixture, I examined her stool and found the slide full of ova round-worm. The second day she was given only milk and I gave the following the next morning

Rx—
Ol chinopodim ms x.
Carbon tetra chloride ms 40.
Castor oil oz i.
Mft. mix.

She had twelve motions during the day and vomited 3 round-worms. I examined her stool and found only 4 round-worms.

After 3 days the above medicine was continued after examining the stool in the microscope and found ova still.

She passed six motions and had 53 round-worms. After the first worm treatment, she could see during night and there was no giddiness. Her yellowish tongue became normal in colour within eight days. Again I examined her stool and found negative in the slide. I gave the following tonic—

Rx—	Ferri et ammon cit	...	gr v.
	Tr. nux vomica	...	m v.
	Liq. arsenicalis	...	m ii.
	Glycerine	...	m x.
	Aqua chloroform ad	...	oz i.

Mft. mixture oz i, T.D.S.

and Kepler's Malt Ext. twice a day and Bovril twice a day. On the 12th day I examined her hæmoglobin and found 40 %.

As the santonine is a very costly drug, the above worm treatment was suggested by our visiting Medical Officer, Dr. Hicky of Batu Anam. I discharged the patient on the 3rd week and she is working without any trouble up to now.

I am treating ankylostomiasis and round-worms with the same *i.e.*, chinopodin and carbon tetra chloride and get the best result.

My heart-felt thanks to Dr. Hicky for suggesting very cheap drugs and obtaining the best result and to our Manager, Mr. C. G. Renshaw who is taking special interest in his coolies, especially those who are in the hospital for treatment.

I shall be very much obliged if any of your readers were to come across a case of similar type to try with the above-given worm treatment which is cheaper than any other, and to publish the result through the medium of your valuable journals. In conclusion, I can say by my short experience that the round-worm patients may look like suffering from jaundice.

The Antiseptic

MAY, 1926.

THE MADRAS SURGEON-GENERALSHIP.

The appointment of Col. Hutchinson as Surgeon-General with the Government of Madras in supersession to Lt. Col. M. N. Chaudhuri forms the darkest chapter in the history of the medical administration in the Madras Presidency. The impotency of the Justice Party Ministry in Madras was manifest, once before, in the appointment of Lt. Col. Bradfield as Principal of the Medical College in preference to the claims of the very same Indian I.M.S. Officer for that place, and the present choice of a stranger to the Surgeon-Generalship of Madras is but the coping stone to that tower of impotency which that party had built up in Madras during the past five years of their regime. Personally, we have nothing to say against Col. Hutchinson. On the other hand, we warmly welcome him in our midst and being the senior-most officer in the Medical Department, almost on the verge of retirement, he must come equipped, we dare say, with that ripe experience and vast skill and knowledge of the healing art, and he must therefore be held to be a good acquisition to this Province. Our tussle now is only with the Government which appointed him, over-riding the claims of a senior Indian I.M.S. Officer, who is equally well-equipped, if not better, who, under normal conditions is entitled to get that high position, and whom colour and racial prejudice have deprived of his rights. Seniority on the All-India general list appears to be the main basis of selection by the Government of India on the present occasion but why had there been lapses in enforcing this rule in the case of the two previous appointments to the Surgeon-Generalship of Madras, remains to be answered. The reason is not far to seek. There was no Indian then to claim the seat, and so, in the usual course, the next senior European Officer in Madras was selected for the place. Now, it so happens

that an Indian is the senior man in the Madras list. We do not know if the Government of Madras ever recommended the name of Col. Chaudhuri. Generally speaking, the Government of India are guided by the recommendations of the Provincial Governments in the matter of appointments and promotions. What was the part played by the Hon. the Chief Minister in this respect and what was the definite recommendation made by him to His Excellency the Governor? Was his recommendation over-ruled by His Excellency or was the conjoint recommendation of His Excellency the Governor and of the Minister in charge of the medical portfolio brushed aside by the Government of India? These are questions, still shroudedin mystery. As one responsible to the Legislature, the Hon. the Chief Minister must have come out with a candid statement before the public, absolving himself from all blame or participation in the matter. He did this neither. His silence only betrays his guilty conscience. If the Hon. the Chief Minister had no part or lot in this unpatriotic business, then surely, dignity and self-respect alike demand his immediate resignation, though it be at the fag end of his term. Since he has not chosen to do so, the logical conclusion is that he had proved himself unworthy of the trust reposed in him by the public and surrendered their rights and privileges for the lure of power and emoluments. Let his electors beware!

A COSY FAMILY PARTY IN THE MEDICAL DEPARTMENT.

Recent events and developments in the Medical Department of the Government of Madras set us a-thinking as to whither, after all, Panagalism is drifting. Jobbery and favouritism seem to be the order of the day in the administration of that department and a setting ministry is over-riding all canons of officialdom to provide fat berths for its chosen few on the eve of relinquishment of its high office. It was only the other day that the Hon'ble the Chief Minister replied to an interpellation in the Madras Legislative Council relating to the prospects of temporary medical men that all of them would have to appear for a competitive examination before confirmation and that merit and efficiency alone would constitute the guiding principle in the matter of appointments and promotions. But now, we understand, that temporary men would be confirmed as vacancies

arose without any competitive examination whatever. The 'survival of the fittest' is no longer to be the criterion for confirmation while friendship and family relationship alone count for admission into the Provincial Medical Service. This latter conclusion is forced on us from the way in which temporary Civil Assistant Surgeons are now being recruited. Only a few months ago, the son-in-law of an influential Government Medical Officer has been taken on as a temporary Civil Assistant Surgeon not by the royal road of selection by competitive examination but by sheer back-door influence. Five more men are to be recruited similarly without any test, without any competitive examination one of whom being the son-in-law of a big Government Official in the Secretariat. Is this the nucleus for the formation of a cosy family party in the Medical Department? Is it by appointments like these that the Hon'ble the Chief Minister wishes to improve the efficiency of the staff? Does the securing of Government appointments also form one of the purchasing prices of sons-in-law of big Government Officials? Has the head of Medical Department entered into a solemn league and covenant with the distressed and oppressed fathers-in-law under the employ of Government to accommodate them and come to their succour? These are some of the questions which require to be answered and in fairness and justice to the suffering many among the unemployed medicos who have gained honors and distinctions in their educational career and who will certainly make a name if selected and appointed, we demand from the Hon'ble the Chief Minister an explanation. It is our emphatic and sincere opinion that the recruitment and confirmation of temporary men in the Medical Department should be made by competitive examination alone and any departure from this wholesome rule deserves the severest condemnation at the hands of the profession and the public.

CURRENT TOPICS

MEDICINE.

Therapeutic Utilization of Antagonism Between Gout and Tuberculosis.—Hervouet noted that gout seemed to exert a favourable action on co-existing tuberculosis. As soon as elimination of nitrogenous substances was reduced under appropriate

treatment of the gout, the tuberculous process flared up anew. Aggravation of the gouty condition induced amelioration of the tuberculosis. Research in this line indicated that creatinin, glycocoll and leucin seemed to be responsible for this phenomenon. He therefore prepared an isotonic aqueous solution of these substances which he used in treatment of twenty-five patients. The first subcutaneous or intramuscular injections of 2 c.c. of the solution were given at four days interval and later, once a week. Series of ten injections were repeated after a two to four weeks' pause. No complications occurred with this solution which is a kind of artificial serum. A general reaction in certain cases resembled the Herzheimer reaction. Fibroid forms of tuberculosis improved immediately, as also most nonfebrile manifestations of tuberculosis. The results seemed uncertain in the febrile cases. The treatment failed in tuberculosis associated with liver and stomach disturbances, and in cases complicated by gastro-enteritis.

Collapse in Typhoid Fever.—R. De Brun (These de Paris, 1925, No. 197), who reports fourteen cases of collapse in enteric fever, holds that the term "typhoid collapse" should be reserved for a definite syndrome which is the same in all carefully-studied cases. The essential features are as follows: (1) A sudden fall of temperature which is more or less steep and may reach an extreme degree of hypothermia. (2) An equal sudden fall of blood pressure, which is more or less marked and often steep. It may be latent. When it is well-developed it is manifested by the following symptoms: a remarkable change in the expression, the face being pinched as in peritonitis, and cyanosis which sometimes affects the skin generally. The various clinical forms depend on the rapidity, depth and duration of the fall of temperature. Sometimes, a sudden fall of blood pressure is manifested by transient syncope convulsions and sudden death These two symptoms—the fall of blood pressure and the fall of temperature—are almost constant features of typhoid collapse but there may also be transient tachycardia and less frequently, transient polypnœa. The curves of the fall of temperature and blood pressure are not simultaneous or identical, but run their course independently. The principal feature of typhoid collapse is its essentially transient evolution. It is an attack which may last from three or four hours to three or even four days. The prognosis of the attack is often good, but

relapses are frequent. In most cases the temperature is a guide to the duration of the collapse, just as the fall of temperature is to the gravity of the condition. The occurrence of collapse is independent of the gravity of the original disease and in like manner it has no effect on the progress of the disease, which pursues its ordinary course when the collapse has passed off. The collapse is not due to cardiac failure as examination of the heart before, during and after an attack remains negative. It can only be due to a bulbar deficiency which is sudden, though transient. The different centres (thermal, vaso-motor, cardiac and pulmonary) may be inhibited more or less completely.

Pulsation in Peripheral Veins Heart Failure.—Pulsations in the peripheral veins, especially in the basilic veins of the arms, are suggested by Kerr and Warren as an early and valuable sign in detecting the presence of myocardial or congestive heart failure together with a relative tricuspid insufficiency. Their magnitude interprets the degree of myocardial and tricuspid incompetence. Their appearance in cases of marked decompensation suggests a bad prognosis.

THERAPEUTICS.

Sodium Sulphocyanate in Hyperpiesia.—J. B. Nichols (Amer. Journ. Med. Sci., November, 1925, p. 735) recalls that the therapeutic use of sulphocyanates was first suggested in 1903 by Pauli, who found then to have a valuable sedative action in various circulatory and nerve disorders as well as in arterial hypertension. Nichols has used sodium sulphocyanate in the treatment of hyperpiesia for the last fourteen years with most satisfactory results. Those cases in which the hypertension was not due to organic changes in the arteries were the most amenable to treatment. He has found sodium sulphocyanate superior to any other drug in the reduction of blood pressure in appropriate cases, and has obtained marked lowering of 20 to 40 mm. or more after a few doses, although in some other cases the decline was more gradual. Nichols gives doses of 5 grains (1 tea-spoonful of an 8 per cent. solution in water) thrice daily, well-diluted, after meals; to this solution he adds a little phenol to prevent growth of fungi, and peppermint or similar aromatic to lessen the nausea which many of his patients experienced. This dose may be reduced to half or a quarter of a teaspoonful if necessitated by the development of disagreeable symptoms, or as the blood-pressure falls, and

may be continued for several weeks in order to retain the lowered tension. He has found no indication of the sedative effects suggested by Pauli and other previous investigators. Nichols adds that there need be no apprehension of the formation of cyanide from the use of sodium sulphocyanate in therapeutic doses, although the drug is probably excreted slowly and a quantity greater than 3½ drachms may cause death in man.

Phosphorus in various diseases.—A. Castellani (Journ. Trop. Med. and Hygiene, November 2nd, 1925, p. 337) investigated the action of phosphorus in the treatment of various diseases, having discovered that the phosphorated oil of the British pharmacopœia could be administered hypodermically. Ampoules containing 5 minims of pure phosphorus oil and others containing half a minim diluted in 10 minims of almond oil may be obtained. In oriental sore its action is specific, especially in old intractable cases with extensive ulceration, the oil being applied to the fundus and margin of the sore every other day. In nodular lesions 3 to 5 minims of oil may be injected into and around the nodule twice a week. Of two cases of granuloma inguinale one responded to the treatment and the other did not. No beneficial results followed its use in tropical sore, psoriasis, and lichen planus; and while it has no specific effect upon the malaria parasite, the administration of half a minim to 3 minims of the oil twice a week appears to act as an adjuvant of quinine. Encouraging results followed its use in rickets, osteomalacia, and beri-beri. The author adds that the action of phosphorus on the liver must be borne in mind and every precaution taken in its use, though he has not encountered any untoward results from its administration.

Ichthyol in Gonorrhœa.—A. Straszynski (Polska gazeta lekarska, November 1st, 1925, p. 927.) describes the treatment of 41 cases of venereal and skin diseases by intramuscular injections of a 2 per cent. solution of ammonium sulpho-ichthyolate in doses of 3 c.c. every second or third day. The ichthyol should be diluted just before the injection. The author has obtained the best results in cases of gonorrhœal epididymitis; in 17 out of 20 cases thus treated, the pain ceased and the swelling was diminished after the first injection, while four or five injections were as a rule sufficient to enable the patient to

be discharged well or to confine himself to local treatment. In a case of pyelitis with urethritis and epididymitis which was not due to the gonococcus, the swelling had gone down after the third injection and the urine had cleared. On the other hand, no therapeutic benefit was observed in skin diseases treated by ichthyol, except in one case of furunculosis and two of psoriasis. *(J.A.M.A.)*

Caffeine in Epilepsy.—P. Karger (Deut. Med. Woch., November 7th, 1924, p. 1531) states that he began to substitute stimulants for sedatives in the treatment of epilepsy with some scepticism, although the recent work of Stargardter had made out a plausible case for this change. But the author's experience during the past three years with more than 69 cases has convinced him that caffeine may be remarkably effective in a considerable proportion of cases. With the exception of ten patients, in whom the attacks were comparatively serious, his material consisted of patients suffering from petit mal, associated in most cases with enuresis. In every case, a definite connexion was established between the attacks, and tiresomeness and sleep. At first, caffeine was given only to those children in whom the attacks began on getting up or going to sleep in the night, or towards the end of school hours. The ages of the children ranged from 3 to 13 years, and, in order to eliminate suggestion as a factor in the treatment, tinctura amara was at first given for some days: it had no effect. Caffeine was then prescribed. When the attacks used to occur in the morning, only the caffeine was given before rising. The dosage and the spacing of the doses were modified according to the requirements of the individual; it was found advisable to continue the treatment for two to three months after the symptoms had disappeared and to discontinue the treatment gradually. No harm was done, and there were only three cases in which this treatment was ineffective. In no case did the drug interfere with sleep, and in most cases the duration of the cure was considerable.

Intravenous Injections of Sodium Salicylate.—Carnot and Blamoutier report good results from intravenous injections of sodium salicylate in acute rheumatism and epidemic encephalitis. Small doses of the drug (0·20 or 0·40 gm. in a 4 per cent. solution), given intravenously, induce an effect equal to

that from tenfold the dose given by the mouth. It is indicated in rheumatic patients who do not tolerate the salicylate by the mouth or have a failing myocardium. Medium doses (1 or 3 gm), may be given to prevent involvement of the endocardium. Doses above 3 gm. are used with grave complications. In a grave form of epidemic encephalitis from 4 to 6 gm. of the salicylate was given daily in two or three intravenous injections; from 1 to 4 gm. in milder forms of the disease. The injections should be continued long after the morbid phenomena have disappeared, and should be periodically repeated. The injections were without action in post-encephalitic sequelæ. Good results were obtained in four cases of grave epidemic encephalitis, given this injection treatment early.

SURGERY.

The Diagnosis and Treatment of Appendicitis in Childhood.—T. Twistington Higgins (*Clinical Journal*, p. 595).—The clinical features of the onset appear in accordance with a definite time-table.

1. *Pain* is always the first sign. It may be slight and pass unnoticed. It is intermittent and "colicky," and is felt in definite situations, most commonly around the umbilicus, less often in the epigastrium or left iliac fossa, never in the right iliac fossa, as Sherren has emphasized.

2. *Nausea and vomiting* always follow, never precede, the pain. They vary in degree, but usually are a frank symptom in a child.

These are the two vitally important symptoms. Note there is nothing to point to the right iliac fossa, unless it be the constancy of site of the referred pain—periumbilical, etc. They should suggest appendicitis.

3. A very careful examination of the abdomen and a rectal examination may show the first localizing sign—*tenderness*. One must have in mind the likely positions of the appendix:

(*a*) In the *right iliac* fossa (McBurney's point.)
(*b*) Retrocæcal (tenderness in the loin).
(*c*) Pelvic (tenderness per rectum).
(*d*) High up occasionally, where the descent of the cæcum has been incomplete.

Note this is tenderness on pressure. No rigidity, because no peritonitis.

4. *The general signs of toxæmia* enable us to estimate the degree of toxæmia, but they give no clue as to the site of the lesion. They therefore become of increasing importance as the disease progresses, but in the early stage one must not be deceived by the absence of any marked rise of temperature or increase of pulse-rate. If the diagnosis is in doubt, an hourly record should be kept and a rising pulse-rate will be a valuable confirmatory sign. Certainly there are early signs of grave abdominal illness to be noted in the child's appearance—the dirty tongue, the foul breath and a certain facial aspect of anxiety, which are noteworthy and significant to the skilled observer.

Cutaneous hyperæsthesia and the changes in the superficial abdominal reflexes are present in many cases. But though confirmatory, when present, they are too uncertain in children to be of any help in diagnosis.

If all cases were brought to operation at this stage, the mortality would virtually disappear. But once the disease has extended through the appendicular wall, either as the result of gross rupture or bacterial permeation, the condition becomes one of peritonitis, and the case displays the features of that malady. The diagnosis now is usually easy, but it is no longer "early," and the prognosis has become graver. Passing over the familiar phenomena of the peritonitis—the tenderness and rigidity, the rising pulse-rate, etc., with its frequent tendency towards rapid generalization—certain modifications in the earlier picture are sometimes puzzling. Rigidity and tenderness may be absent when the appendix lies in the pelvis or behind the cæcum. Even after invasion of the peritoneum the signs may seem vague unless one makes careful examination of the rectum on the loin. The child's appearance and the rising pulse-rate also afford important evidence.

One especially deceptive phase occurs in fulminating cases. The early pain, though severe, is of short duration, and is promptly relieved by the bursting of the appendix. The cessation of the pain is apt to be taken as a favourable sign and the child for the moment seems better, but the pulse-rate will be found to be rising rapidly and the general aspect soon reflects the gravity of the illness.

1. *Differential Diagnosis.*—Intermittent colicky pain in the abdomen, nausea and vomiting may be produced by several intra-abdominal conditions in childhood, which have no relation to acute appendicitis. A *distended bladder*, or a *gland*

mass in the mesentery may give rise to these symptoms. *Intestinal obstruction* will begin in the same way, but simple constipation in a child seldom causes pain, nausea and vomiting. In most of these conditions there is no evidence of an acute illness and the condition is usually transient.

2. *Enterocolitis.*—Here vomiting usually ushers in the illness and the profuse diarrhœa is characteristic, while the pain is more vague and generalized. The child in the early stage of acute appendicitis may pass one or two offensive motions—which may suggest enteritis, but there is no prolonged diarrhœa.

3. *Acute ileo-cæcal lymphadenitis.*—Usually an enteritis, but with a focal tenderness in the ileocæcal angle, where the glandular enlargement is most marked. This deep tenderness in the right iliac fossa is, of course, very suggestive of appendicitis. Usually the onset is a little indefinite and diarrhœa is a feature. The temperature is high and the pulse-rate only correspondingly accelerated. There are none of the local signs of peritonitis, and the glands may be palpable. Nevertheless, it may be difficult or impossible to distinguish this condition from early acute appendicitis, and under certain circumstances operation may be the wisest course.

4. *Acute pyelitis.*—The patient is almost always a little girl. The early symptoms are indefinite, the tenderness being higher up and corresponding to the kidney. The temperature is usually very high and there is a characteristic flush of the face and dryness of the skin—quite unlike the "abdominal facies." The urine will usually give the conclusive evidence, being scanty, highly acid, opalescent and containing trace of albumen, pus-cells and organisms on culture.

5. *Cyclic vomiting ("acidosis.")*—Here again, the patient is most commonly a little girl. The onset is characteristic. The child becomes pale, irritable and tired-looking. The bowels are constipated and there may be vague abdominal pain. Then vomiting suddenly begins and becomes profuse, and the child becomes collapsed with sunken eyes and weak, rapid, thready pulse. The breath smells characteristically of acetone and the urine goes black with Rothera's test. There may be vague abdominal tenderness as a result of the vomiting, but the general picture is quite clear, and ought not to be confounded with appendicitis. However, acute appendicitis may occur in a child subject to recurrent attacks of cyclic vomiting and then the history may mislead.

6. Lastly, pain may be felt in the right iliac fossa, referred from a lesion elsewhere, even rigidity also.

(a) Pneumonia and pleurisy: The pulse respiration ratio should be recorded and the chest examined. Usually the clinical picture, the non-abdominal type of onset, the high temperature and rapid respiration, etc., are distinctive.

(b) Certain special conditions:

Acute anterior poliomyelitis.

Herpes zoster.

Spinal caries.

These conditions are not likely to be mistaken by the careful observer.

7. Once peritonitis has developed with local tenderness and rigidity, while it is most likely to be due to appendicitis, it may also be the result of some other lesion such as pneumococcal peritonitis, tuberculous peritonitis, or pyosalpinx.

Treatment.—Whatever arguments may be advanced in favour of expectant treatment at certain stages in the adult, at whatever stage the diagnosis is made in a child immediate operation is indicated. The objectives are removal of the appendix and any dangerous by-products with delicacy and safety; avoidance of further soiling of the peritoneum, and prevention of infection of the tissues of the abdominal wall; and then the maintenance of that degree of rest for the peritoneum which will best ensure recovery. Rest to the peritoneum is attainable only if peristalsis is virtually inhibited. Hence Murphy's rule: nothing by mouth and morphia hypodermically. Purgatives have no place in the treatment of acute appendicitis before or after operation; they contravene this law of rest.

Before operation, the child is put up in the fowler position. Nothing is given by mouth, an enema is administered if necessary and the bladder emptied naturally or by catheter. Ether by open method with atropine half an hour before is the best anæsthetic. Complete exposure is essential if the requisite gentleness and care are to be exercised. This demands a depth of anæsthesia ensuring complete muscular relaxation and a sufficiently bold incision. Acute appendicitis cannot be properly dealt with through a minute incision or a rigid belly-wall. The ileo-cæcal area must be carefully packed off to protect the general peritoneal cavity. The peritoneal cavity is mopped as

dry as possible of all free fluid or pus, especially in the pelvis. When in doubt, always drain. The writer prefers soft tubes of rubber sheeting.

After operation, the child is kept in the Fowler position. No drinks are given until the pulse-rate is approximately normal. This can be done only if fluid is administered in the form of rectal salines, to which glucose is added. If these are skilfully given so that the child retains and absorbs them, thirst should not be troublesome. The mouth is kept moist and clean by frequent mouth-washes, the sucking of peppermint drops or the chewing of pineapple chunks. Morphia, or preferably heroin, is given hypodermically. If the bowels are not evacuated naturally, a simple enema is given on the third day.

OBSTETRICS AND GYNÆCOLOGY.

Endocrine Treatment of Menstrual Disorders.—Fifty-two cases of menstrual disturbances were seen by Donovan in which roentgenograms were taken of the sella and of the hand. In these cases, signs of pituitary deficiency were found in association with large and small sellæ. The size of the sella is no indication of the size or functional capacity of the contained pituitary. In all the cases, however, some degree of tufting in the terminal phalanges, with or without mush-rooming, was seen; and the more marked the symptoms and the longer their duration, the more evident were these changes. The tufting and mush-rooming are considered as evidence that over-activity of the anterior pituitary was present at some time. This, associated with fatigue—constant and made worse on exertion—is taken as an indication that under-activity is present and that anterior pituitary medication is needed. If there is present shoulder, waist and hip-girdle obesity, extract of whole gland is given. Donovan emphasises the fact that glands of internal secretion are not isolated organs but each gland is to be considered an integral part of an inter-related chain of glands. Furthermore, they affect and are affected by the nervous system and other organs of the body.

Uterine fibroids.—Remember that the portion of the uterus above the internal os is the part principally concerned in gestation. While fibroids may be found in the cervix, yet they are more frequently found above the internal os.

Keep in mind that fibroids are benign, though they may undergo various secondary changes.

Remember that they may atrophy at the menopause, or become calcified from the deposit of lime and salts. Dilatation of the lymph-spaces and cyst formation may take place.

Remember that submucous fibroids may become pedunculated and form what are known as uterine polypi; this variety may become infected, and suppuration take place. Remember also that malignant changes occur in the fibroid, and we have carcinomatous and sarcomatous degeneration.

Remember that all fibroids are not large, and that they vary in size from a small shot to enormous tumours weighing several pounds.

Remember that they may occur singly, but that they are usually multiple.

Remember that large abdominal fibroids may cause cardiac hypertrophy of the left side, and eventually, fatty degeneration. The liver may also undergo fatty degeneration.—*Barnes: "Golden Rules of Gynæcology."*

DELHI MEDICAL ASSOCIATION.

ANNUAL DINNER.

The Annual Dinner of the Delhi Medical Association took place on the 6th April 1926 in the premises of Messrs. Alasia & Co. Covers were laid for 45 persons. The band was in attendance. Among the guests present were Col. S. Leathes, Dr. Cahill, Rai Bahadur Dr. Siriram and others. After the dinner was over, the President made a brief speech in which, after welcoming the guests and members, he dwelt on the appalling mortality which obtained in India among adults and children.

Death rate in 1923—London = 12: New York = 13: Cawnpore city = 49·73: Cawnpore Cant. 13·96: India = 25: Calcutta = 28·4: European army = 3·75: Indian army = 5·88: Infantile death rate (1923) India = 263: London = 118: New York = 181: Bournemouth = 41: Calcutta 294: Bombay City = 624: Delhi = 212 etc.

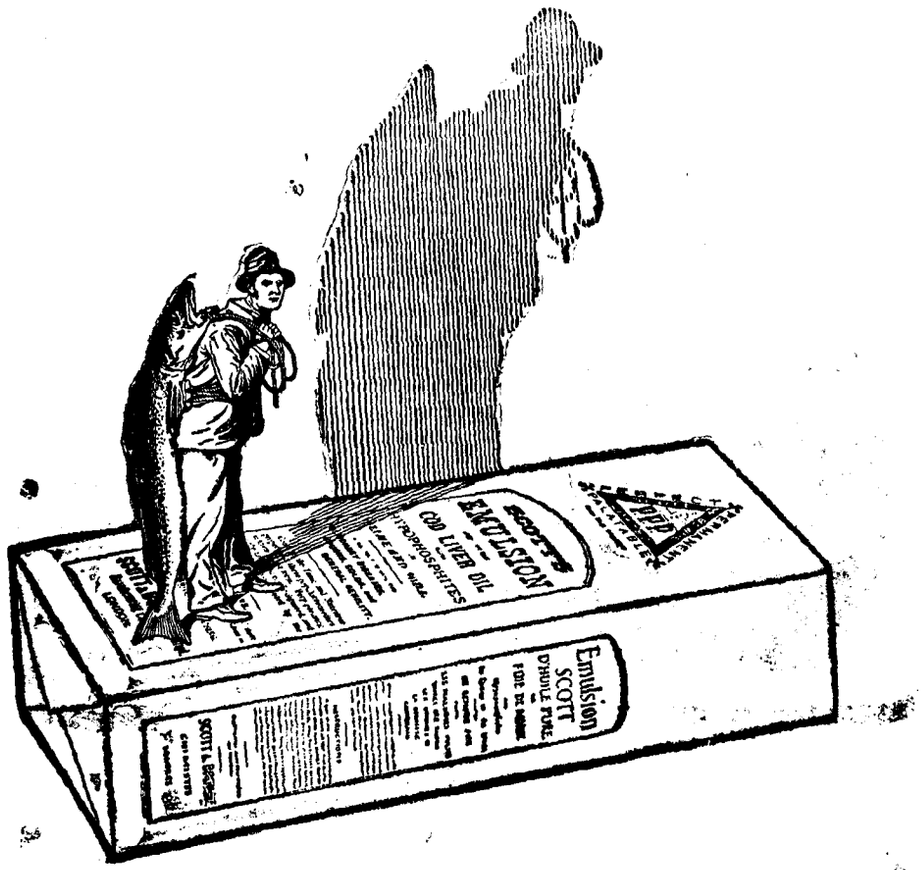
The mortality is lower in Jails than that of the civilian population outside. He remarked on the defects in the registration of vital statistics in India, there being no checking of the

work done by the ministerial staff and emphasised on its importance in its relation to preventive work. To combat this high mortality, the Government was urged to initiate a National Health Insurance Scheme which would provide expert medical advice and treatment for the insured persons specially in villages. More than 90% of the Indian population live in villages which are 6,85,000 in number, containing 28 crores of inhabitants in contrast with 2313 cities with 3 crores of souls. The financing of the scheme could be done through funds acquired by this scheme and supplemented by state.

The speaker next stressed the urgency of public health work on the local self-governing bodies which should comprise the following:—collection and verification of vital statistics: control of epidemic and preventable diseases: carrying out of vaccination: doing propaganda work through lecturers and health visitors with magic lantern: educational cinema films and a temporary or permanent exhibition of hygienic models. Teaching of personal and public hygiene in primary, secondary schools and colleges was essential for a diffusion of health knowledge. The University of Delhi and the Educational Board were urged to introduce Hygiene in their respective curriculums.

The speaker conveyed the high appreciation of the Delhi Medical Association for the bill introduced by the Honble Dr. Rama Rao in the Council of State with the object of constituting a General Medical Council in India. Its functions will be, as in the United Kingdom, to regulate the medical education in India and keep a register of qualified medical persons. He condemned the modern tendency of multiplying medical schools and put in a strong plea for creating an efficient general practitioner possessing the highest qualifications and for rejecting all inferior brands.

He next touched on the subject of the Hakims and Vaids, the irregular army of India, whose systems of medicine, though not based on scientific principles, are credited with undoubted therapeutic powers. They should have a thorough grounding in Anatomy, Physiology and Pathology and need to be examined by a duly-constituted Board before they are put on the register. The local self-governing bodies should employ these hall-marked qualified practitioners in preference to the old class in municipal dispensaries and hospitals.



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He then dealt with the scheme of reorganisation of Indian Medical Service and in referring to the rumours stated that a great injustice would be done to Indian officers if they are transferred to military employment to make room for British officers who alone would treat British civil officers in future. He paid a high tribute to the Indian Medical Service which has given to India a long array of distinguished physicians, surgeons and research workers and could not believe how the Indian officers, skilful and endowed with initiative and character, would be penalised for no other crime than that of colour. The following scheme has been suggested for the consideration of Government:—

A military reserve should be created to meet medical requirements of the army in peace time. A R.A.M.C. (India) should be constituted like the British R.A.M.C., consisting of the white army (according to War Office orders) and the Indian officers would cater for the Indian army. Examination for R.A.M.C. (India) should be held in London and India. Indians passing the preliminary test should proceed to London to join the R.A.M.C. college till such time when an Indian college is established and fill vacancies on their return in the R.A.M.C. cadre (India). To increase their range of professional experience, R.A.M.C. Officers may be transferred to civil employment for 5 or 10 years and may or may not revert to military service. The present officers of the Indian Medical Service would be absorbed, all retaining their rights. Transfer of senior officers of Indian Medical Service from civil to military would be stopped while junior officers of Indian Medical Service would revert to military employment and would become officers of R.A.M.C. (India). A Civil Medical Service should be established in each province, recruitment to which would be secured by (1) seconding of British officers from R.A.M.C. (India), providing qualified British medical attendance for British civil officers who require a member of their own race (2) a competitive examination held in India (3) promotion of civil assistant surgeons who have taken a post graduate course (4) selection from the private practitioners.

The districts of a province should be grouped and a British medical officer (civil or military) would hold charge of a station in each group and would attend British civil officers at that station or at any place nearest to this station. The minimum number of British Officers in Civil

Medical Service would be fixed in accordance with this grouping scheme. Officers of Civil Medical Service should be given a military training in a R.A.M.C. College in India (when established) to equip them for field duties in the event of a war involving general mobilisation. Delay in announcing the scheme will add to discontent and rob it of its grace, should there be any concession at all.

The speaker urged the Government to permit the Association for returning its accredited representative to the University of Delhi and the Municipal Committee to voice its opinion. He also advocated the reintroduction of the scheme of appointing private practitioners as honorary physicians and surgeons to the Civil Hospital Delhi as was done in the past and also as in vogue now at Calcutta, Lahore, Madras etc.

He ended by thanking the guests and lastly ,Col. Franklin who took a great interest in the Association.

After the opening remarks, the president proposed "The King" and "The Delhi Medical Association". Next Drs. Chowbey and J. K. Sen toasted the guests and Col. Franklin respectively. Col. Franklin, in rising to reply, was greeted with cheers and he thanked the Association in suitable terms for the kind words and the cordial welcome extended to him. In supporting the proposal of a general medical council in India, the Colonel claimed priority in having elaborated such a scheme years ago in Indore with Dr. Chandi Parshad. He believed that the influence of quacks would diminish with the growth of sound public opinion and added that the day was not distant when the civil surgeon would be extinct and the whole country would be covered by a panel system.

BOOK REVIEWS.

A HAND-BOOK OF MIDWIFERY.

For Midwives, Maternity Nurses & Obstetric Dressers. Sixth Edition. By Comyns Berkeley M.A.M.C.M.D. Cantab, F.R.C.P. Lond. M.R.C.S. Eng. Obstetric & Gynecological Surgeon to the Middlesex Hospital; Lecturer on Midwifery at Middlesex Hosp. Medical school etc. Pages 578. Illustrations 73. Published by Cassell & Company Ltd. London.

This sixth edition of this handbook, has been thoroughly revised and rewritten and the chapters on artificial finding and premature children have been recast. Elementary Physiology has been added to the schedule of subjects. Part I deals with Elementary Physiology just sufficient to enable the pupil midwife to understand the circulation when studying hæmorrhage, those of respiration when studying asphyxia neonatorum etc. This book also includes the outline of the treatment that a medical practitioner might be expected to apply if his assistance were available so that the midwife may know what the doctor is likely to do, in order that she may duly prepare the patient and the surroundings. The illustrations are excellent and educative.

THE SEXUAL LIFE.

In its biological significance as a dominant factor of vitality in man and woman and in plants and animals by: J. Rutgers, M.D. Translated by Norman Haire, Ch. M., M.B. Pages 448. Published by Verlay R.A. Giesecke Dresden—A. 24. (Germany)

We read this masterly treatise on the sexual life with great interest. It is a guide for sexual life in all its stages from birth till death, with its details studied in their causes and effects. The author has taken the male, rather than the female sexual life as his starting point and has left the woman to ascertain for herself and to describe, how she feels the life impulses. The book is written in a simple language.

ULTRA-VIOLET RAYS IN THE TREATMENT AND CURE OF DISEASE.

By Percy Hall, M.R.C.S. (Eng.) L.R.C.P. (Lond.) with introductions by Sir Henry Gauvain, M.A., M.D., M.C.I (Cantab.) and Leonard E. Hill M.B.I (Lond.) F.R.S., Pages 114. Illustrations, 22. Published by: William Heinemann (Medical books) Ltd., London.

The research work conducted during the last few years have placed on a sure foundation the therapeutic significance of radiant energy. In this little volume Dr. Hall has collected his extensive clinical observations on that form of radiant energy known as ultra-violet rays. The use of the rays in surgical tuberculosis and rickets and hastening the cure of wounds etc. has already been established. Dr. Hall has written this book in view to extend the use of these rays to other conditions of human ailments as well.

BOOKS RECEIVED.

The following books have been received and the courtesy of the Publishers in sending them is acknowledged. Reviews will be published from time to time. [ED. ANTISEPTIC.]

The Manager of the Antiseptic will be pleased to supply the readers any books acknowledged hereunder, or others at the Publishers' price. When sending their order, the readers are requested to send a remittance for the full value of the book. That a remittance in advance should be requested is no reflection on the credit of any reader of the Antiseptic, but is simply a condition necessitated by circumstances.

The cup of Health.—By Rev. T. Gwernogle Evans. Published by the 'Educational Publishing Co.' 9, Southampton Street, Holborn, London W.C. 1.

The Tree of Medical knowledge for Male and Female.—By Rev. T. Gwernogle Evans. Published by Messrs. Jones and Sons, Crown Printing Works, Morriston. Price 2s.

Sex and Morality.—By T. Brown Partington. Published by the 'Athletic Publications Ltd.', Link House, 54—55, Fetter Lane, London E. C 4. Price 2s. 6d.

Man—His Making and Unmaking.—By E. Boyd Barrett. Published by Thomas Seltzer, West 50th Street, New York.

The Principles of Evacuation.—By Lt.-Col. T. S. Rhoads. Published by the 'Association of Military Surgeons', Washington.

Notes on the History of Military Medicine.—By Lt.-Col. F. E. Garrison. Published by the 'Association of Military Surgeons', Washington.

Welfare work in Industry.—By E. T. Kelley. Published by Sir Isaac Pitman and Sons Ltd., London. Price 5s.

The Call of the Child.—By A. Dengwall Fordyce M.D., F.R.C.P. Published by Messrs. A and C. Black Ltd, Soho Square. London W. 1. Price 2s. 6d.

The International Year-Book of Child Care and Protection.—Published by Messrs. Longmans, Green and Co., 39, Paternoster Row, London E. C. 4.

Mothercraft.—Published by the National League for Health, Maternity and Child Welfare. 117, Piccadilly, London W. Price 4s. 6d.

A Clinical Index of Radium Therapy.—By Hayward Pinch. Published by the Radium Institute, 16, Riding House Street, Portland Place, London.

Supreme Art of Bringing up Children.—By M. R. Hopkinson, Published by Messrs. George Allen and Unwin, London. Price 2s. 6d.

Every-day Psychology in the Nursery.—Published by the National League for Health, Maternity and Childwelfare 117, Piccadilly, London. Price 1s.

Child-Life in Westminister.—By Bishop Gore, D.D. Published by World's Children, London. Price 2s.

Child Saving and Child Training.—By Julie Eve Vajkil. Published by World's Children, London. Price 1s.

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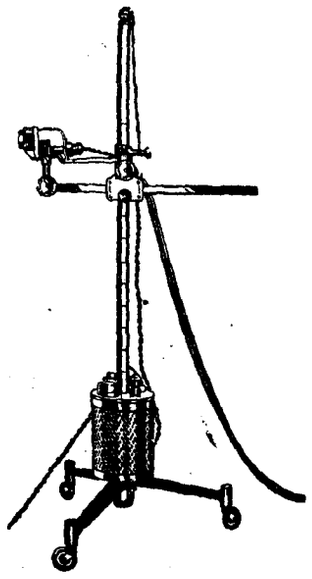

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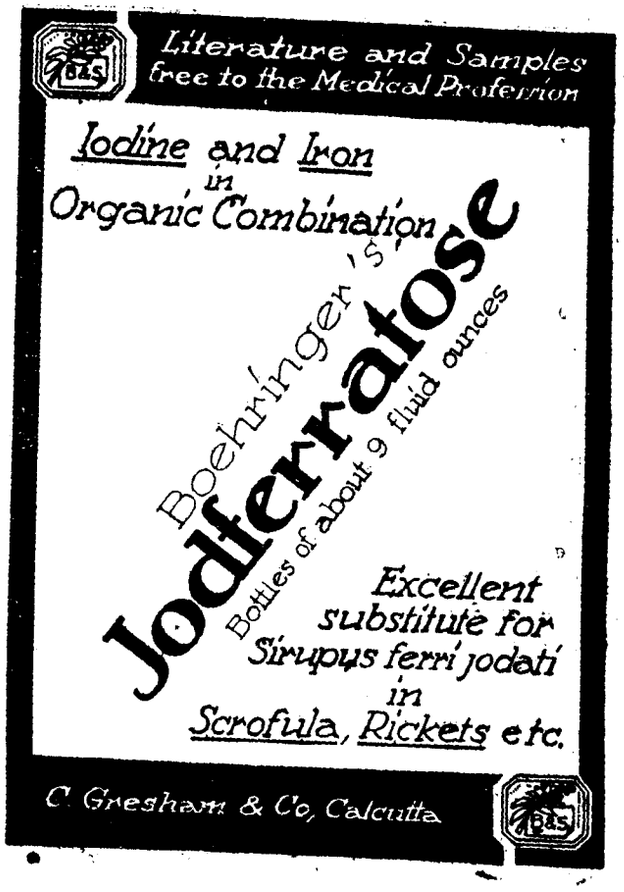

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EDITED BY

THE HON'BLE U. RAMA RAU

AND

U. KRISHNA RAU, M.B., B.S.

CONTENTS

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ORIGINAL ARTICLES.

THE TECHNIQUE OF MODERN SURGERY AND HOW TO ATTAIN SUCCESS

BY

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LECTURE [illegible]

OPERATION.*

GENTLEMEN,

I shall deal with the technique of surgical operation to-day. It is beyond the scope of my short lecture to define and discuss all the various processes in detail. I shall give you only a few important hints and touch on some essential points I have gathered from the experience of the illustrious surgeons whom I have seen and read, as well as my own, for your guidance, and reference also. I have collected for you the pithy and interesting sayings of modern surgeons, and do not claim any originality in them. A surgeon should be familiar with the broad principles, but to a student even the minutest details are indispensable.

"Brilliant operators are not always the best surgeons." writes the late Dr. Senn. "The best results in surgery follow

* A clinical lecture delivered at the Bir Hospital on 25 4-26 and specially sent to the Antiseptic for publication.

the one who is most painstaking in following out the minutest details." According to the ancient classical Hindu physicians "four things are necessary for success in treatment". They are as follows: (1) a sober and obedient patient; (2) pure medicine, good instruments and accessories; (3) competent and trustworthy assistants and nurses; and (4) lastly, a qualified, experienced and conscientious physician or surgeon.

In a big hospital one of the house-surgeons, usually the senior, is to be held responsible for the preparation of patients and arrangement of operations. He must arrive at least an hour before the time appointed for operation, and examine and watch every detail of sterilization, direct the arrangement of tables, instruments and dressings, and also order the preparation of bed for the patient after operation. If, for example, it is a case of operation for piles, he should enquire if T-bandage, sterilized vaseline and rubber tube, etc., are kept ready; if of excision of upper jaw, whether tracheotomy instruments are kept ready for emergency, and so on.

Jacobson most appropriately observes, "careful planning and organisation are essential for success in modern surgery." The operating surgeon must remember always that the whole blame of failure will fall on him, no matter whether anæsthetist, assistant or nurse is at fault. Therefore the surgeon must see the details of preparation for the operation as he comes to the hospital. I saw Dr. Lockhart Mummery examining even the operation table, especially if it was a portable one, before operation to see whether it was fitted up all right, and was quite stable. The surgeon should, if possible, also pay a visit to the patient before he is taken to the operation room, feel his pulse and speak a few words of encouragement; and believe me, all the stimulants of the world put together are not equal to one *kind word and an affectionate touch* from him. Never should an operation be begun until everything "which is likely to be required is quite ready"....."He (surgeon) should select and arrange and examine" says Treves, "with the greatest care".

The surgeon enters his own room, removes his outer garments * and then wears rubber apron, and after due mechanical cleansing, chemical disinfection and sterilization of hands and forearms wears sterilized gown, mask and gloves, and also changes his shoes with the help of staff-nurses and

*I have seen a distinguished surgeon removing not only coat, waist coat and collar, but also nearly all under-dressings, even socks.

attendants. A surgeon should have a light meal before an operation, but never a heavy meal immediately before.

For nervous and weak patients it is better to give an injection of ¼ gr. of morphia sulph. and 1/150 gr. of atropin sulph. while he is in bed, half to three-quarters of an hour before operation. In order to lessen the element of fear, Crile advocates 'blocking of nerves' by local injection of novocain sol. (1%) on the proximal side of the site of operation. Infusing warm saline at 110 F. under the skin of chest during whole period of operation should be carried on in weak and anæmic patients at the rate of one pint per hour. As soon as the patient is 'under', I usually ask my assistant to begin the saline, and only then start operation. Stimulants excite and produce hæmorrhage; strychnin hydrochlor 1/50 gr. given hypodermically just before administration of anæsthesia helps a good deal. In order to produce ischemia of the field of operation and to prevent post-operative hæmorrhage inject subcutaneously 20 c. c. of a 3 % solution of Coagulen-Ciba, or 2 c. c. of Homoplastin shortly before operation. In case of a big tumour rich in blood-vessels it is advisable to hold it vertically for 15 to 30 minutes, and then apply an elastic tourniquet over it, if necessary.

In a big hospital, where several major operations are performed daily, the patient is anæsthetised in a separate side-room, and is wheeled in slowly as soon as under, and transferred to the operation table. There should be two nurses or attendants on either side of the patient when he is brought in, to guard against accidents and to help in lifting him on to the table. Again, as soon as the operation is finished, the anæsthetist leaves the operation room and starts anæsthesia for the next patient, so that the surgeon is not kept *waiting* for a long time. Usually the surgeon comes in to the operation theatre when the patient is nearly under; it is indeed tedious to stand with folded hands before a struggling patient; but if the anæsthetist is not an expert, the surgeon must supervise.

One of the assistants removes the dressings, and another, with purified hands, sterilizes the skin with ether and spt. bin-iodide (1 in 500), and paints Tinct. Iodine Rect. with sterilized swabs mounted on forceps. Next, he covers the surrounding parts with either sterilized or boiled towels wrung out dry in such a way that the area of operation only is left bare. Similar towels are also spread under the field of

operation, and in amputations or excision of joints the limb is covered with sterilized towels, both above and below, for the purpose of manipulation. Moist towels should not be used over a large area, as *cold increases shock*. Towels are best fixed by towel-clips, which are sometimes made to pierce the skin in case of necessity. Backham's or Moynihan's towel-holding forceps are ordinarily used. The patient should be warmly clothed and " covered everywhere that the site of operation permits by flannel or woolly clothing—where possible, the operating table should be warmed and in default of this, hot-water bottles should be placed about the patient". (Gwynne Williams). Utmost care should be taken not *to wet the patient* during operation.

New model pedestal operation table as used in St. Bartholomew's Hospital, London, is the best; this is supplied with lithotomy stirrups, drainage, head and leg supports, and can be raised or lowered bodily by an oil-pump, which is worked by the foot-pedal. But for ordinary hospital purpose Dr. Waring's portable table is very serviceable. The surgeon, before each operation, should mark out the position of his assistants. There should be one double-arm immersion-stand containing antiseptic lotions at some distance on the side of the surgeon, and near by, another revolving or two-storied basin-stand containing sterilized plain water and saline solution; one instrument table with two trays for instruments and sponges; one foot-stool with non-slipping rubber-tipped legs, and one adjustable operating stool. Surgeon's instrument tray will only contain cutting instruments, dissecting forceps, probe, director, dissectors and so on. While, on the opposite side and near the chief assistant there should be similar arrangement of tables; and in addition, one adjustable irrigator mounted on a heavy base with a basin to hold douche-nozzle, and two tables, one to hold dressing kettles, the other, instruments and needle, suture and ligatures in different trays. Last of all, one anæsthetizer's stand for holding chloroform apparatus with side-bars for towels and shelves for bottles.

It is not safe to start operation before the patient is fully '*under*', because death from chloroform usually occurs when 'partial anæsthesia' is produced on account of the 'depressing effect of operation upon heart', causing death by shock. "Pupil gives important indications" writes Sir William Whitlaw, "as long as it remains contracted, there is, as a rule, little danger, but full dilatation of the pupil always

means grave danger.....Operation should, therefore, never be commenced till full narcosis has been produced". I have often noticed, that if once the operation is started while the patient is still struggling, he will continue doing so, unless special care is taken, during the rest of the operation. You should neither be in a hurry yourself nor goad the anæsthetist to 'hurry up'; but should cover up the bare field of operation with sterilized towels, and wait patiently till patient is ready.

THE TECHNIQUE OF OPERATION PROPER.

I shall give you only some of the most common procedures required in the performance of an operation namely, (1) asepsis and antisepsis; (2) position of the patient; (3) position of the surgeon and his assistants; (4) incision; (5) dissection (superficial and deep); (6) enucleation; (7) control of hæmorrhage and ligatures; (8) amputations and excisions; (9) laparotomy; (10) repair of nerves, vessels, tendons, ducts and other structures; (11) skin and bone grafting; (12) treatment of septic wounds and contents; (13) drainage; (14) dressings and bandage; (15) application of physical science in surgery; and (16) general remarks.

Though I am sure, you know the fundamental principles, yet, I hope, a brief and practical consideration of these points will not be quite out of place.

I. ASEPSIS AND ANTISEPSIS.

Both the terms mean 'exclusion and destruction' of septic micro-organisms; the former is done by heat, boiling, steaming or actual fire; and the latter by chemical agents. This is enough about them.

II. POSITION OF THE PATIENT.

The patient is usually put under chloroform in the dorsal position, and when under, is placed in the required position. Most of the operations of surgery are performed in supine or dorsal position, i. e., patient lying on the back. Then, we have lateral position (right or left) of which the exaggerated left (Sim's) is very common. Mummery sometimes places the patient "on the left side in semi-prone position with buttocks on the edge of the table" in rectal operations; but he usually prefers the lithotomy position. Then, there is the 'elevated' lithotomy position. In operations of fauces and tonsils, especially in children, Rose's position—by hanging the head to prevent blood flowing into the respiratory passages,—is necessary. Jacobson advises that "the arm of the side upon

which he rests is placed under chest, while legs are flexed both at the knee and hip-joints" in operations of the perinium and for empyema. The prone position is lying on the chest, and is used for operations on the vertical column etc., but it should be avoided as far as possible, as it interferes, in a great measure, with respiratory movements. Trendelenburg's position is well-known and is used especially in gynæcological operations, pelvis raised 'above the level of head to a height of from a few inches to as much as two feet,' in order to let the intestines fall towards the epigastrium. Da Costa teaches us not to use this position in myo-cardial disease, as it increases the blood pressure. It is little use in fatty subjects and contra-indicated in a pelvic abscess (Konig); the normal position is *gradually restored* after operation. In Mayo Robson's position the region of liver is supported on a firm sand-bag 18 inches × 6 inches × 3½ inches; Rexford's position is exactly the opposite. 'Dental-chair-position' is recommended for removal of Gasserian ganglion; and for cerebellar operations the patient is placed in prone position with forehead resting on a tripod; but Dr. Rawling usually prefers the semi-prone position, and sometimes he keeps the head and shoulders raised and at an angle of 30 to 40 degrees with the body.

III. POSITION OF THE SURGEON AND HIS ASSISTANTS.

There can be no hard and fast rule as regards this. The surgeon should take any position that is *most suitable* to himself and stand nearest to the field of operation. When the incision is to be given vertically from above downwards, or transversely from left to right, the surgeon should stand to the right of the patient; and, if in opposite directions, to the left. For an ambi-dextrous man such restrictions are unnecessary. The chief assistant usually stands on the side opposite to the surgeon; the second assistant, on the right of the surgeon, and the third on the right of the chief assistant; but in operations specially limited to one side, I usually take the chief assistant to my right side.

IV. INCISION.

The line of incision must not be made haphazardly, but should be very judiciously made according to the nature of operation and condition of the case. Books on surgery describe the position and also give length and direction of incision for almost every kind of operation; but you should not follow them blindly. Rather use your discretion according to the

merit of the individual case. For example, if the patient is diabetic, debilitated or suffering from Bright's disease etc., you must make your incision the smallest possible. Your line of incision should be carefully planned and made in such a way as to expose most vividly the underlying tissues or diseased parts and, as a rule, along the *longest diameter*, —a little more on either side than the length of the tumour itself. For general purposes it should be *parallel to, and not across* important vessels, nerves, tendons and fascia, and as far as possible, in the direction of natural folds of the skin. It should be usually perpendicular, and not horizontal. Longitudinal incisions appose naturally, while transverse ones become gaping. The edge of knife should be held vertically, and the wound should be clean-cut and severed by one stroke; there should be no laceration, irregularities, notching or 'tailing'. It should be free, and as long as is necessary, but as far as possible, should not encroach on dangerous zones. You should learn to divide skin, fascia and fatty layer by one and the same incision, the muscles by another and so on, if necessary; and in order to be successful, you must perform operations on dead bodies. There is *no credit* in the performance of an operation with a small incision at the risk of working in darkness, and bruising and lacerating the deeper structures. Treves says, "in a skin incision, the wound should be complete at its extremities as well as its centre". You should also try to avoid disfigurement at least of the face as much as possible.

Incisions are of various shapes and directions, of which, the linear, transverse, oblique, circular, semi-lunar, eye-shaped and eliptical are the most common; less common are V, U, S, J, L, T-shaped incisions; and lastly, Kocker's 'angled' and collar incisions.

There are three methods of holding a knife; (1) like a 'pen,' for small incision and careful dissection; (2) as a 'violin-bow' for a longer cut or extensive separation; (3) in the manner of a 'dinner knife' for stronger cuts. Some surgeons use one knife for the skin, and another for dissection of deeper tissues. Bark Parker's and Dartigue's knife with inter-changeable blades are very good for making skin-incisions; Mayo's is suitable for deep dissections. For amputations, even big knives are out of use now-a-days; any stout knife with a slightly 'bellied blade' serves the purpose. Skin should be made '*tense*' by the surgeon or his assistant with hands, or by means of

tissue-forceps in order to make an *ideal incision*. You should divide the skin, fascia and fat in the same line and must not separate them. It is better not to cut the underlying structures in one and the same line, especially in a laparotomy, so that they lie in one or the other side of the skin-incision, making thus the line of suture *unyielding*.

V. DISSECTION.

In the first place, in reflecting a skin-flap, you should see that it is not button-holed. You must protect the margins of the skin-incision from infection and laceration. The orifices of ducts of sebacious and sudoriferous glands open upon the surface of the skin, and their excretions are not always aseptic, and hence the danger. So, the margins should be covered with some absorbing or impervious material, and held in position by clips or tissue-forceps. Some surgeons cover the entire thickness of the wound with towels or gauze-pieces—held by retractors, and some use temporary stitches on the cover with skin enclosed.

Surgical dissection is quite different from your anatomical dissection, because that is on a living body and this is on the dead. Asthenic condition of the patient, probability of shock or collapse, effect of chloroform, free hæmorrhage and pathological changes are the causes which not only make operation difficult but dangerous also. The real confusion arises when we lose sight of anatomical relations and topography; and then we have either to work with an unsteady hand aimlessly or finish the operation only half-done. Therefore, it is very important that you should *dissect step by step and layer after layer*; and before you do so, you must know what you are cutting at and what comes next. Sir Havelock Charles used to tell us "you can cut anything, if you are prepared for it"; for cutting is dangerous only when it is done unknowingly, and you do not detect the damage.

In order to dissect properly you must retract the surrounding tissues and expose fully the underlying structures. Select the proper retractors and *guard against undue stretching* and damage of tissues. For ordinary operations Guy's retractors (assorted sizes) are the best. Lace's and Milligan's are automatic and are of use especially when hands are short. Morris' retractors are very serviceable for abdominal operations, and Doyen's are the best for abdominal hysterectomy. For operations per vaginum Jayle's self-retaining retractors are very useful. Binnie speaks highly of 'thread-tractors',

and asserts that ordinary retractors in a limited space "impede further operative work"; for bigger spaces use two instead of one on either side, the ends of which are held by forceps. Pauchet makes elaborate use of tissue-forceps for retraction, and I have personally found them very useful; even in piles operation he uses them as retractors, instead of a speculam. Lane's and Moynihan's are the best. Ordinary pressure-forceps damage the tissues, so never use them for this purpose. In excision of rectum, Pauchet uses gauze-retractors.

As regards dissection, Ramsay's forceps give a good grip. Toothed dissecting forceps are non-slipping; Treve's and Bonney's are very suitable. As regards dissectors I have found Durham's and Macdonald's very useful. Treves strongly condemns the use of directors for dissection purpose; but I notice Pauchet uses the same probe-pointed with guard and frænum slit in every step; the simple thing is, that *you should know its use* and not poke it here and there rashly or indiscriminately. As regards finger, the less you use them the better. Remember, that an incised wound heals better than a lacerated wound. Treves advises that "the depths of the wound should not be torn open with fingers"; of course, there are certain spaces in the body which may be termed as dangerous zones', where free use of sharp instruments is most unsafe, and blunt dissection is the only safe method. In enucleation of suppurating or tuberculous glands of neck, axilla, inguinal, femoral, poplitial and supra-clavicular regions; in the space between the ramii of lower jaw and mastoid process; in front of elbow and wrist; on the inner aspect of ankle; on palmar and plantar surfaces, in Hunter's canal, in excisions of goitre, rectum, joints and parotid tumours, in freeing the hernial sac, in pan-hysterectomy and perineal prostatectomy and in intra-cranial, abdominal and thoracic operations generally I would strongly urge you not to use a sharp or pointed instrument for deep dissection; on the other hand, handle of scalpel, dissectors or the blunt point of curved scissors are suitable and free from danger. I have found the single blade of curved scissors very convenient specially in enucleation of glands or tumours; I apply the plane concave surface with edge downwards against the convexity of the tumour for the upper and outer surfaces and the other one with levelled edge for inner and lower surfaces. Pauchet frequently uses compress or tampon mounted on forceps (Rampley's sponge-holding forceps is

very good) for dissection. A ball of gauze held by a tissue-forceps serves the purpose very well ; the free-cut margins of the compress should be folded inside. Gauze dissection means 'brushing' with gauze-covered finger, and is generally useful in freeing all sorts of adhesions, and particularly peritoneal. In deep dissection thoroughly retract the parts, pick up and raise the folds of subjacent tissue (specially fascia) which are uniform in thickness and texture and divide them at right angles in between. If you find anything unusual or resisting in relation to size or position, examine it carefully, feel it and squeeze it between your fingers, ascertain if there is any pulsation ; also calculate in your mind at the same time the possibility of any important structures being present there ; if there is not, you can proceed without fear. You must cultivate an acute sense of touch, and almost create *eyes at the tips of your fingers ;* you should be able, for example, to count the number of piles by mere manual examination. And in order to do so, you must examine hundreds of normal and abnormal cases. This is purely practical,. and no book can teach you these things. Do not cut doubtful structures with one stroke, but by repeated light strokes. You can easily distinguish a vessel from a nerve ; you prick a nerve, you get a response. In a dangerous area, Binnie advises to " make a number of small *nicks* instead of a definite cut." Save important nerves, vessels, ducts and structures as far as possible. First define, then free, and finally retract, reflect or displace from the field of operation by blunt hooks or 'ligature-retractors'. The dissection must always be made with the greatest care. Senn teaches us that " in vicinity of the large vessels every structure must be identified before it is separated "...." It is better to resect it (a vessel) between two ligatures than to run the risk of wounding it accidentally." Some of you who have seen me performing the excision of rectum up to near the sigmoid flexure, and specially big thyroid glands, have perhaps realized the gravity of dissection. In operations on the bone, if you always keep your dissector, periosteum elevator or raspatory, or chisel beneath the periosteum and directly against the bone, you have nothing to fear except for a few neutriant vessel, so long you do not open the joint. I have removed three-fourths of clavicle and nearly the whole of the febula for necrosis without the least trouble to my patients or inconvenience to myself.

During the course of dissection careful sponging is of utmost importance ; usually assistants do it, and

it is to them that I offer a few remarks on the subject. Sponges should be "as little wet as possible and be applied with a quick, firm and decisive touch". Careless, aimless and sluggish sponging is often a veritable cause of annoyance to the surgeon. You should keep the sponge in readiness, and apply it at once with a steady and proportionate pressure and remove it immediately. Don't keep it pressing there unnecessarily. Never use a cold and wet sponge, as it takes away heat from the patient's body. Do not sponge with your hand, if you can avoid it ; it is far better and safer to sponge by means of a gauze compress or pad mounted on a suitable pair of forceps. Throw away the sponges after use at least in aseptic cases. You can, however, for ordinary cases, use the same again after being cleanly washed in a bowl containing hot sterilized water. Lastly, frequent cleansing of hands during operation with sterilized water is most indispensable ; some use antiseptic lotion first, and then wash out the hands in plain sterilized water ; personally I have the *double wash* before introducing my hand into a serous cavity ; and I use warm saline before intra-peritoneal manipulation. As soon as lotions are used they must be thrown away and replaced by fresh ones. Dirty lotions must be changed immediately they are known to be so. It is needless to say, that the swabs sticks must be wholly sterilized; and in order to introduce them in deep and inaccessible wounds the surgeon must examine the end to see that the pledget of gauze or cotton is quite tightly applied.

VI. ENUCLEATION.

Often glands and tumours require enucleation and extirpation. No operation is complete unless you remove the infected glands and lymph vessels. According to Senn " the chain of enlarged glands should be followed as far as possible, as it is much better to remove a few healthy lymph glands than leave minute foci of disease ". The sterno-cleido-mastoid sometimes require to be divided and internal jugular vein to be tied to fully expose the deep glands that are affected. Senn gives the shaped incision beginning from chin and ending in acromial extremity of the clavicle for the removal of tubercular glands of neck. If the glands are suppurated it is better to scrape out the product with a Volckmann's spoon. Glands or tumours should be held by means of forceps, freely exposed on all sides by careful dissection, and last of all connections with deep structures separated mostly by longitudinal strokes of a director or dissector,

and occasional transverse cuts or snips. Thus all the soft tissues give way and the root is thinned down and the structures that remain attached are usually only vessels, nerves and ducts, and must be divided between two ligatures.

Do not leave any portion of the tumour, unless embedded in the dangerous zone or exceedingly adherent to important vessels or nerves. Keep your knife, curved scissors or its blade as close to the tumour as possible, at the same time do not open the capsule, if it is present; because, it is easier to remove the tumour with capsule than without it, and the chance of hæmorrhage is much less. Never pull out a gland or tumour from its base and sever it by a single cut, as there is a great risk of wounding or even dividing important vessels lying underneath.

There are two methods of dealing with a pedicle-needle: One is to " transfix with a blunt-pointed pedicle-needle (or needle mounted on a needle-holder) carrying a double ligature. The needle is withdrawn, two ligatures locked, tied" and the tumour removed. (Waring). But if the pedicle is too big or broad, it is " caught in one or two clamp forceps and is cut across above the forceps, and the tumour removed "....." The vessels in the pedicle are then caught separately in smaller forceps, and tied ". If it has a peritoneal coat, it is brought together with 'a continuous catgut over the cut edge' (Jellett).

VII. CONTROL OF HÆMORRHAGE AND LIGATURE.

The most important step in operation is the control and arrest of hæmorrhage. Sir Charles Balance advises, " any way, whether bleeding threatening life is external or internal the surgeon's duty is to stop it". You must not lose a single drop of blood unnecessarily and without fullest justification. It is only a reckless surgeon who does not mind the loss of his patient's blood. Although speed in operation is an essential factor, yet you should not try to attain it at the sacrifice of other important considerations. According to Thomson and Miles " severe degree of shock follows sudden and profuse loss of blood ". So, you must try to prevent hæmorrhage by all means at your disposal. Bleeding delays operation, and delays in operation increase the shock. In the first place, you can control hæmorrhage by Petit's screw tourniquet or digital pressure on the main artery supplying the field of operation. You can also apply elastic tourniquet previous to operation; but before doing so you should keep the limb or part elevated for 15 to 30 minutes. Thomson and Miles prefer pressure to

elastic tourniquet, and hold that pressure of tourniquet sometimes produces shock. There are several methods for the arrest of hæmorrhage namely, torsion, forci-pressure, cautery, cold application and styptics. Walsam holds that " the surgeon, if the bleeding point is within reach, need never fear hæmorrhage, as mere pressure with the finger will control it whatever the size of the vessel, till he can obtain the means of permanently arresting it ". Always keep plenty of forceps ready in any operation, even when you are sure that no bleeding is expected. If a vessel is found visible across your line of incision, apply forceps and divide in between. Kocker's forceps are very suitable for this purpose. What I do usually, is, to put a ligature by means of an *aneurism* needle or McEwen's hernia needle on the proximal side, and apply forceps on the other. If the assistant is an expert, it is better to leave the arresting of hæmorrhage to him. The assistants should hold the sponge in one hand and forceps in the other, and *wait in readiness.* As soon as a vessel is cut and he finds the bleeding point, he catches it. If it is not caught immediately, the surgeon just applies the tip of his finger against it, so long he is not ready to pick it up. In applying sponges to the bleeding point, do not *rub against it, but just press over it.*

Cold increases shock, and styptics are either inefficient or harmful; so both of these processes are to be deprecated. Adrenalin solution is useful in arresting capillary hæmorrhage, but is sometimes deceptive; and I have met with renewal of bleeding after a temporary pause. Apply the tourniquet so tightly as to occlude the arteries; if only the veins are compressed, and arteries not obliterated, the result will be 'a raising of venous blood tension' and consequent hæmorrhage later on (Walsham).

Regarding ligatures, as a rule, do not catch vessels carelessly together with a 'large mass of tissue about the bleeding point'; and even if you do so, you should remove the forceps as soon as the urgency is over, and then neatly pick up the bare vessels and readjust the forceps. Sometimes, it so happens that you miss the bleeding point and hold the connective tissue in front of it or around it; and in a few minutes you notice extravasation of blood or hæmatoma around it. If you cannot find out the bleeding point, enlarge the wound and open out the subjacents space and secure the vessel.

Most veins have valves, but not all; portal, hepatic, renal uterine, ovarian, and veins of the neck, lower rectum etc.

are destitute of valves. (Gray). Veins of neck are of the greatest concern to surgeons, on account of embolism following their damage. So you must always divide the vein between two clamps or ligatures. Thomson and Miles urge that " the wounds in this region should be kept filled with normal salt solution. Immediately a cut is recognised in a vein, a finger should be placed over the vessel on the cardiac side of the wound, and kept there until the opening is secured ". In veins of other parts you need not mind the cardiac end, but here you must secure both ends. Dr. Gant asserts that the expert surgeon, early in operation always locates the exact anatomical position and then ' isolates, ligates, and divides the necessary vessels, which enables him to perform a quicker, cleaner and more complete operation '.

Pauchet advises to stop arterial bleeding in the bonny canal with wax, if it be small, and with ends of bone if it be large. This plugging in operations on the skull is done by cutting a piece of bone close to the area.

If the bleeding is not perfectly arrested, and spurting or oozing is going on, sponge carefully and secure even minutest bleeding points. In handing over forceps to the surgeon hold them by the tip, with the other end towards the operator. Some surgeons assert that the ligature should be tied ' so tightly as to cut through the inner and middle coats' ; but Binnie holds that this is not necessary ; " all that is requisite is to have the lumen obliterated and the inner surfaces of the intima in contact ". In tying an artery the sheath should be separated and only the bare artery tied. The aneurism needle should not be threaded before, but after its passage. Silk is best for ligatures as it does not slip ; it should not be either too thick or too thin, neither too long nor too short, 18 inches being a suitable length. In using catgut, try to transfix it or make 3 ties. Ligatures should be placed so as to ' control its tributaries '. If the bleeding vessel is too deep or you cannot secure the end, try to encircle the bleeding point and apply a *buried* ligature, care being taken not to include a nerve or duct in it. If it be within a dangerous area and you dare not pass a needle, secure the bleeding point by forceps and leave them there for 24 to 48 hours after which they may be safely removed. In bleeding from muscular branches, needle threaded with catgut, mounted on a needle holder or forceps is passed around the bleeding point and tied. Spurting vessels require ligature ; but oozing or slight venous hæmorrhage is controlled by hot gauze packs or compresses. Remember, that

tepid water washes out the clot and excites hæmorrhage again; while water of temperature between 110 to 120 F. arrests oozing at once.

If oozing or spurting occurs from inside the bone where you cannot secure the bleeding point, break the bonny septa with a blunt instrument, or apply actual cautery ; but if it occurs from the bone-marrow, application of Horsley's antiseptic wax arrests the hæmorrhage. In operations on the tonsil and fauces one assistant has to hold the head of the patient, and turn him on the face immediately after operation, while the surgeon should at once sponge the face and nape of the neck by a towel soaked in ice cold water ; very often this stops the bleeding. Sometimes, the application of Hydrogen peroxide also acts as a hæmostatic.

Not to speak of suturing a wound if there is the slightest bleeding, you should not do so if there is even a trace of oozing. Pack up the wound if the arrest of hæmorrhage is not complete ; wait for few minutes and then remove the packings. If you do not succeed, leave a tight pack or drainage, and apply a tight bandage and keep the part properly elevated. If you apply a tourniquet, do not remove it all on a sudden ; but loosen it slowly and by degrees and secure the remaining smaller branches, one by one. Apply the ligature 1/6 inch beyond the tip—on the proximal side, so that it may not slip off. If the tip beyond the ligature —on the distal side is too long, snip it off leaving about 1/6 inch of the vessel. When the surgeon applies the ligature, the assistant should keep the vessel slightly stretched by holding on the forceps ; but as the surgeon tightens the knot, the assistant should *relax* the forceps in order that the knot be quite secure. The assistant after passing it to the surgeon, should hold with his left hand the forceps in order to unlock it afterwards, and with his right hand the scissors—to cut off the ligature ends. The cut ends should neither be too long nor too short, the reasons for such a procedure being obvious.

(To be continued.)

In my previous lecture I omitted to mention that as a routine practice I always give a dose of Santonin two or three days before operation, especially in children. What happens generally, as a result of chloroform after the operation, is that the patient vomits ; and if Santonin be not given previously to one having worms, he usually vomits day after day, which only aggravates the condition.

*EPIDEMIC DROPSY

BY

DR. S. N. DE, L.M.S., D.T.M., CALCUTTA CORPORATION.

Mr. President, Ladies and Gentlemen—

When we met together on a Saturday afternoon, I had not had the ghost of an idea that I shall be hauled up before you and far less hauled up as an expert on Epidemic Dropsy. True I investigated a few cases in 1919 but I may tell you at once that I have neither any claim nor the slightest pretence to such an honour. I am an humble and a most insignificant worker. I know I am a mere cipher in this great accompt and knowing as I do my limitations and defects I appear before you to learn the learned views of the great thinkers of to-day and great thinkers in making assembled here to-night. My investigation began in July 1919, having been put to it by the Calcutta Corporation in addition to my ordinary routine laboratory work and ended in November the same year. Subsequently I came to learn of a few more cases in December and January following and as I had not had the opportunity of investigating these latter, they were not included in my list appended below. Since then a large volume of water flowed down the Hughli and much better qualified and more competent and scientific investigators appeared on the scene and took up the enquiry in right earnest in a more scientific way and that with the great resources at their disposal. They have already collected a large volume of fresh materials and interesting facts to build a more satisfactory theory on, and naturally I feel quite diffident to put my antiquated views forward. Nevertheless since you expressed a wish to use me as a stopgap before you could make some satisfactory arrangement for your Society, I bow to your wishes and proceed to give you some of the facts gathered by me. They are not by any means exhaustive and the conclusions drawn therefrom, may be, for aught I know, erroneous, not having had at the time the opportunity of testing them in view of the fresh lights thrown on the subject by the interesting observations of Col. Megaw and Major Acton. All that I can say at the present moment is that the last word on the disease and its etiology has not yet been said and if any one

*A paper read at the Club of the Post-graduate Scholars' Society at the School of Tropical Medicine, Calcutta, in December 1923 under the presidency of Col. Megaw, the Director of the School, and specially re-written for the 'Antiseptic'.

wants to get more up-to-date informations, I would refer him to the very learned articles of Major Acton and Col. Megaw in the Indian Medical Gazette.

DISTRIBUTION AND SPREAD OF THE DISEASE.

So far the cases investigated by me were all among Bengali Hindus, not a single case among other communities living in Calcutta having come to my notice during the period of investigation. Subsequently, however, I came to know from some of my Indian and European Colleagues of a number of cases among the Mahomedans and Anglo-Indians, in whose dietary rice formed the principal article, but their number was few and not included in my list.

13 groups of cases were seen by me consisting of 76 individuals affected out of a total of 176 members either of the same families or living under the same roofs. Both rich and poor were equally affected. These 13 groups of cases were in 13 families, 6 living in District IV, 2 in District II, 4 in District I, and 1 in Belgachia. The cases occurred in isolated groups which may each be regarded as an independent focus, except in 2 instances, one in District IV (group XIII) and another in District II (groups X & XI) where the two affected families were living together and in consequence, coming in close and frequent contact, and in a third instance in District I, though the two affected families were living in two separate houses (9 and 19, Karbella Tank Lane) and under very dissimilar conditions (i. e. one family fairly rich and the other very poor) the children of the two families were freely mixing and playing together. In the poorer family, out of 9 members, 1 adult and 4 children were affected, whereas in the richer family only the 4 children were affected. In almost all cases, varying intervals between 3 to 5 days were noticed between the first and subsequent cases in the same affected family.

We had in District	I	34	cases
,,	II	15	,,
,,	III	nil	
,,	IV	24	,,

INCIDENCE BY THE MONTH.

July—8, August—42, September-nil, October—15 and November—11.

Total number of members 176, number affected 76 or 43%, mortality 4 or 2.2%

INCIDENCE ACCORDING TO SEX.

Total No. of members	Affected	Mortality
Males—110	Males 54 or 49%	Males—2
Females—66	Females 22 or 33·3%	Females 2

INCIDENCE ACCORDING TO AGE.

1—5	5—10	11—20	21—30	31—40	41—50	over 50
nil	25 or 32·9%	14 or 18·5%	16 or 21%	9 or 11·8%	7 or 9·2%	6 or 6.6%

Though no age appears to be immune, the disease seems to have greater proclivity to attack young children. In the several groups of cases investigated I did not come across a single case in a child below 5 years of age. The case incidence is the greatest i.e. 32·9% in children between the ages of 5 to 10 and all the three deaths amongst the children in my list occurred between these ages. It is remarkable, indeed, how a very large number of cases occurred in very young children and then there is a gradual decline as age advanced.

RELATION OF INCIDENCE TO SEX.

Male: Female as 54: 22 or it is nearly 2·5 times greater in the male than in the female.

SYMPTOMS.

While Anorexia, malaise, pain all over body, palpitation, certain amount of dyspnœa and œdema of lower extremities and anæmia were common to all, there was fever in 63 cases and gastro-enteritis in 53 cases. No fever in 13 and no gastro-enteritis in 23 cases. Dyspnœa and palpitation were experienced in the majority of cases except only in the few children who were up and about (group VI). No definite heart lesions in any of the cases except in one case where there was general anasarca and in 4 cases of deaths. In one case at Kidderpur, there was acute dilatation of the heart and death was so sudden that no diagnosis was made before death, but the nature of the disease soon revealed itself by a large number of people both adults and children of the same families having taken ill almost simultaneously.

Relation of the outbreak to articles of diet (particularly to rice, flour and mustard oil).

Just previous to the appearance of this small wave of epidemic dropsy in Calcutta, a similar small wave of the disease passed through Howrah. Concurrently with the epidemic, a severe type of gastro-enteritis appeared at Howrah in

consequence of pakra oil being used as an adulterant of mustard oil complicating and confusing the outbreak of the disease. Dr. Mitra of Howrah, a very careful observer himself, traced the disease to the use of this adulterated mustard oil. Perhaps, the use of the adulterated mustard oil precipitated the outbreak there. In the Calcutta epidemic we carefully examined all samples of mustard oil collected from the affected houses but the samples were negative for pakra oil.

RICE.

Similarly, we collected samples of rice, wheaten flour as well from each affected household. The samples of rice were of very varying grade from the coarsest to finest and best but in a majority of cases, unpolished. Close observation and investigation failed to reveal any other case in the neighbourhood of the affected families. We did not have much luck that way. 73, Moyerpur Road, a big bustee with small hamlets, in each a family lives. All families living in the bustee obtained their supply of rice from the same grocer but members of only one family were affected. In certain of the rich families as in the case of the family residing at 62, Shambhu Nath Pandit Road, they did not store rice but stored paddy and had rice made from paddy for one or two months' consumption at a time as required. The rice was not milled but simply husked in a country husking machine. Out of 11 members, 8 were affected and 3 spared though all took the same rice.

Blood and urine examinations showed nothing abnormal. From investigations and analysis we found that the diet of the affected family was a mixed diet and that there was no deficiency in vitamines to speak of.

The onset of the disease in almost all the cases was marked by a feeling of out-of-sorts anorexia for a variable period upto 10 days, which may be regarded as the incubation period and the condition, of which the outward manifestations were gastro-enteritis and fever in 70 to 75% of the cases, was caused more by toxins than by any food deficiency—toxins, which methinks, were elaborated in certain parts of the digestive tract due to faulty metabolism, brought about, may I suggest by some temporary endocrine deficiency of proteins in general and rice proteins in particular, some organism or organisms either already present in the system or introduced from outside, helping in the elaboration of the toxins.

Summary of the important details of cases of Epidemic Dropsy of 1919.—Vide p. 365

Address.	Families residing.	Families affected.	Total number of persons in families.	Total No. affected.	Affected. Males	Affected. Females	Affected. Children	General Symptoms.	Special Symptoms.	Food.	Analysis.	Blood.	Urine.	Remarks.
3 Diamond Harbour Road. Group I.	5	1	19	4	4 ages between 20 & 55.	...	...	Feverishness, gastro-enteritis; flatulence; œdema of legs; pain all over body; no enlargement of liver or spleen, scanty urine; anæmia.	No dilatation of heart; no dyspnœa; just a feeling of exhaustion on slight exertion.	Unpolished deshi rice and Cawnpur mustard oil, ordinary mixed diet.	No deficiency in phosphoric acid contents; no pakra or mineral oil present.	Nothing abnormal except a slight increase in Eosinophiles.	Scanty but normal in constituents.	Source of infection could not be traced. The first cases in the locality. Affected persons were members of the same family.
5 Moyerpur Road Chetla. Group II.	1	1	3	3	1 46 yrs. of age	1 39 yrs. died.	1 6 yrs. died.	Fever; no gastro-enteritis; œdema of extremities, anæmia.	Acute dilatation of the heart.	Do.	Do.	No blood examination.	Nil	Source could not be traced. Mother and child died within a couple of hours of each other of heart failure.
7 Diamond Harbour Road. Group III.	5	1	19	1	...	...	1 8 yrs.	No fever or gastritis; œdema of legs; anæmia.	None ...	Do.	Do.	Increase in Eosinophiles.	Scanty but normal.	Infection might have been caught from cases of group I.; the members of the other 3 families living on the premises were not affected.
Shambu Nath Pundit Street. Group IV.	1	1	11	8	4 ages between 15 & 50.	4	...	Fever; masked gastro-enteritis; œdema of lower extremities. Pain all over the body.	Shortness of breath; palpitation; moist rales at bases of lungs but no dullness, headache; dizziness.	Deshi rice of the best quality from their own fields; ghani mustard oil, males vegetarians, females mixed diet,	Do.	Do.	Normal	Infection from a guest who came ill with gastro-enteritis and œdema of lower extremities. Cook and servants all infected and ran away. New arrivals were infected in 8 or 10 days.
Veterinary College, Balgachia. Group V.	1	1	12	12	3 and 3 servants.	...	6	Fever; gastro-enteritis. œdema.	None ...	Mixed diet. Good balam rice, ghee, mustard oil, etc.	Investigated by Dr. T. K. Ghose.			
9 Karbella Tank Lane Group VI.	1	1	9	5	1 age 66.	...	4 age 6–14	Fever; no gastric trouble; bronchitis; œdema; children with bronchitis and œdema were all up and about.	The old man had diarrhœa, jaundice, dilatation of heart with mitral insufficiency.	Deshi rice-unpolished; mixed diet; no flour; no ghee; mustard oil from a neighbouring grocer's shop.	Rich in phosphoric acid contents, mustard oil good.	Marked, Scanty; increase in Eosinophiles in all cases.	Scanty; normal in constituents.	Tiled but not very sanitary.
19 Karballa Tank Lane Group VII.	1	1	9	4	...	...	4 age 9–13	No fever; no diarrhœa, only œdema of legs; children were all up and about.	None ...	Mixed diet. Attending physician put them on chapatis instead of rice, mustard oil from their own mills.	Nothing abnormal.	Increase in Eosinophiles.	Scanty but normal.	Brick-built 2-storeye house, not very sanitary.
Soalapara Lane. Group VIII.	1	1	14	6	1 age 60	2 ages 18 & 23.	3 7 to 10 yrs.	Fever; diarrhœa; œdema of legs.	Dyspnœa on exertion.	Mixed diet; balam rice and good mustard oil.	Nothing abnormal.	Increase in Eosinophiles.	Scanty; normal in constituents.	Tiled hut, insanitary.
Peary Mohun Sur Lane. Group IX.	1	1	25	7	2 (20 & 32 yrs).	...	5 between 6 & 12 yrs.	Do.	Dilatation of heart in 1 case.	Do. ...	Do. ...	Not examined.	Scanty, but normal in constituents.	Pucca building but insanitary.
Fakir Chand Deb Lane. Groups X and	5	2	29	15	2	servants		Fever; gastro-enteritis, œdema.	Palpitation; dilatation of heart and general anasarca in one case living.	Ordinary mixed diet, balam rice and good mustard oil.	Do. ..	Do. ...	Not examined.	The members of these two families were infected by two already infected persons who came and lived here for several days.
					2	3	3							
					2	2	1 (1 death)							
4 Puddopuker East Lane Group XII.	2	1	11	4	2	2	...	No fever; diarrhœa, and œdema present.	Dyspnœa	Mixed diet, unpolished deshi rice and jail mustard oil.	Good ...	No increase in Eosinophiles.	Scanty ..	Tiled hut, insanitary.
Manshatola Lane. Group XIII.	5	2	31	5	1	...	4 (1 death)	Acute symptoms with high fever in the fatal case.	.....	Do. ...	Do. ...	Increase in Eosinophiles.	Normal	Pucca building not insanitary.
				2	1	...	1	In others, diarrhœa and œdema.						

Many theories have been advanced, and of these the more important are—avitaminosis, deficiency in animal protein diet, Fungus disease of rice and bacterial infection. Avitaminosis, I understand, has no great advocates now-a-days and does not apply to at least a large number of my cases. Suggestions were made that the disease affected particularly people whose diet was poor in animal protein but I for one, cannot attach much importance to them when I consider the cases of a certain number of respected members of the medical profession whose daily meal consisted of a sufficiency of eggs, fish and flesh with a few spoonfuls of rice occasionally and yet they were not spared.

Regarding the poisonous amines in diseased rice—interesting experiments are being carried on and we may await the result with patience. Meanwhile, the analysis of this small series of cases brings before us prominently the two following important facts. The first is that whilst simultaniety of infection does occur in several instances, there is an interval varying from 3 to 4 days to 1 to 2 weeks between attacks in household.

The second is the interesting fact that in groups of cases where the members of the 2 families were attacked they were in frequent and close contact. In one case, the two families lived in separate houses. I refer to groups IV, VI and VII and groups X & XI. Without going into details I draw your attention to the fact regarding group IV, that a guest came in with gastro-enteritis and œdema of feet to live with a family living at 62, Sambhu Nath Pundit Street. Before the arrival of the guest there was no illness in the family but in 8 or 10 days of his arrival the members of the family began to get ill.

In groups VI & VII, enquiries elicited the fact that the children of the family (group VII) were alone affected and they used to play with the children of the affected family constituting group VI.

In groups X & XI, two families were affected. There was no illness in either of the two families. The disease made its appearance after an infected couple (both husband and wife already diseased) had come to live with them.

In group XIII, the first case was that of a young boy 7 or 8 years of age. It rapidly proved fatal. By and by, the other members of this and another family living in the same house were affected.

Finally, the highly poisonous amines extracted from the diseased rice grains being water-soluble are automatically eliminated as the rice is thoroughly washed in several changes of water before being cooked and after cooking it, is strained and the extract thrown away. The experiment of introducing the amines directly into the circulation is at best faulty for poisonous amines introduced by the mouth are often rendered harmless by the sound liver before they get into the general circulation.

The seasonal prevalence, the very high rate of attack in infected houses and its peculiar age incidence and particularly, the peculiar circumstances in which the disease was introduced in certain of the families led me to the conclusion that we were dealing with an infectious disease.

I spoke of faulty metabolism due to endocrine deficiency. What I mean is this ; that at particular seasons of the year the glandular secretions are at a low ebb and as certain articles of food induce hyper-secretion, so certain others induce inhibition. What these and similar conditions and similar articles in diet do in respect of the various ductless glands we do not know but that they induce a profound change in a man's body for the time being at least is often realised. The whole machinery is thrown out of gear and you cannot metabolise even your usual food ; there is a feeling of lassitude ; in some, the skin breaks out in urticarial eruptions and so on ; and if certain organism or organisms take the body at this tide they produce these toxins in much the same way as they do in different artificial culture media in the laboratory—the nature and virulence of the toxins being determined by the kind of food you supply in the various media. Only, we do not know the nature of change in the body which supplies a suitable pabulum to some of these micro-organisms to produce suitable toxins for the production of symptoms.

The appended list of groups of cases is taken from I.M.R Oct. 1922.

IODINE THERAPY*

BY

CAPTAIN A. F. W. DA COSTA, L. M. & S., D.T.M.,

LECTURER, ROBERTSON MEDICAL SCHOOL, NAGPUR.

In my opinion no sufficient prominence nor adequate importance has been given to this powerful, inexpensive and easily-obtainable remedy—IODUM—at our disposal—which, when injected into the circulation, sensitizes the thyroid thus apparently evolving a hormone which fires the trigger of perhaps an indolent endocrine machinery and brings to life, so to say, the functions of the complex human system, thus setting right the morbid condition or conditions of the body, *per se*, as it were.

Iodine also helps to cause a leucocytosis as I have in many of my cases made an absolute W.B.C. count before and after Iodine treatment and have found that the leucocytes have been doubled or trebled or even quadrupled which goes to show that Iodine is a powerful leucocytic stimulant. Leucocytosis means a better phagocytosis which is our ultimate object.

Its value where there is toxæmia is undoubted and the benefit consequent on the injections is due to a combination of factors, *e.g.*, (*a*) the fillip given to endocrine activity as the thyroid is the key to the pluri-glandular machinery ; (*b*) leucocytosis ; (*c*) elimination by the skin, since a reaction often follows in acute infections, *e.g.*, Pneumonia, Enteric Fever, &c. in the shape of rigor and profuse perspiration.

Its value in chronic affections is beyond dispute as well as will be evident from the cases mentioned below.

Iodine is best administered intravenously with a small all-glass 5 c.c. hypodermic syringe with a fine needle. Any vein will do, as I administer these injections without even a tourniquet or bandage or compressor round the arm except in stout and dark-skinned subjects when a tourniquet, *e.g.*, a piece of rubber tubing, is essential.

An aqueous solution of Iodine is much better than a spirituous one as the latter, if any escapes into the tissues round the vein, is likely to cause irritation, pain and swelling whereas the former hardly ever will.

I usually administer the solution quite concentrated as it mixes with the blood stream and is soon diluted. Such solutions can be easily carried about in a test-tube or a glass stoppered bottle in the pocket or in the doctor's bag.

* Specially contributed to the 'Antiseptic.'

The solution is made up by taking

Iodum gr. i.
Potassium Iodide gr. i.
Distilled water 5 c.c.

Method of making the solution :—

The distilled water is taken in a test-tube and the potassium Iodide is added to it and boiled and then the Iodum is added and the tube shaken and the solution is allowed to cool before administration. The tube is closed with a plug of cotton wool sterilised over the spirit lamp as is done in the laboratory—and the test-tube rolled up in paper with the cotton wool the plug can be carried about safely in the upper coat pockets. Potassium Iodide facilitates the solution of Iodine.

Having selected a vein or if necessary, having applied a tourniquet of rubber tubing or bandage to the arm (or even compression of the arm by an assistant or an intelligent ward-boy or a nurse or a compounder will do in a thin subject), the area over the vein is cleansed with a little spirit or ether or chloroform or tincture of Iodine (the last is unsatisfactory on dark skins), the solution is drawn into the syringe and injected into the vein. To ensure that the needle is in the vein draw the piston of the syringe out a little when blood will rush into the syringe if the needle is in the vein ; if not, the piston will recoil when let loose. Immediately after the injection, the limb is raised and the puncture which is kept pressed by the finger or thumb after the withdrawal of the syringe is sealed with Collodium or Tr. Benzoini Co., on a thin filmy layer of cotton wool.

Smaller doses of Iodine than that advised above, are not satisfactory. The dose may, and in some cases has to be increased to two grains to produce striking effects.

Injections may be given every day, every other day or twice a week *pro re nata*, i.e., according to the severity of the case and the condition of the patient. If the patient is in an enfeebled state one cannot expect immediate good effects, but one must go patiently when excellent results will be obtained in the end.

With even a dozen or two injections of this solution to a single patient within three or more weeks I have not yet come across a single case of any untoward effects. Iodism sometimes does occur. Moreover, this treatment is the only one at our command in septic and similar conditions whether in

hospital or private practice when dealing with a poorer class of patients who cannot afford vaccines or other sorts of treatment which may be just as efficacious, as the results are both gratifying and rapid.

Below, I cite a few cases of various pathological conditions picked out at random from my case-records in support of my paper.

I. PUERPERAL FEVER.

Mrs. L.—32 years of age, had high fever for ten days after difficult labour and was very restless when I was called in to see her. On examination, the discharge from the uterus was very foul and offensive. Temperature was 104·4°, pulse 122, respiration 36 and she had a surgical tongue. Blood was negative to malaria and showed leucocytosis.

24th An injection of 1 gr. solution of Iodum was given in the morning. There was no reaction. Temperature in the evening was 103°.

25th A second injection of the same strength was repeated. There was no reaction. Temperature in the evening was 101·8°.

26th A third injection as above was given with no reaction. Temperature in the evening was 100°.

27th A final injection of 1 gr. Iodum sent the temperature down to normal, after which, the patient made an uneventful recovery. The usual light, nourishing diet, stimulants and uterine and vaginal douches were ordered.

II. DOUBLE PNEUMONIA.

Rev. M.—Aged 35 years, took suddenly ill with fever and cough on the 20th and after the initial purge and rest in bed I was sent for on the 21st when temperature was 102°, pulse 120, respiration 36. There was expectoration and the lungs on examination seemed normal. Blood was negative to malaria.

22nd Temperature 103°, pulse 124, respiration 46; a very careful examination of the chest still revealed nothing but expectoration was muco-purulent.

23rd Temperature 104°, pulse 120, respiration 60. Right lobar pneumonia with rusty sputum became evident. An injection of 1 gr. Iodum produced a reaction within 4 hours, so much so that the patient had a rigor and the temperature rose to 105.6°. The heart was supported by brandy and digitalis.

24th Temperature 103.4°, pulse 124, respiration 68. Patient looked still bad and on examination, left lobar pneumonia was also detected, i.e., the patient had double pneumonia.

A second injection of 1 gr. Iodine produced a reaction severer than the last.

25th Temperature 100·2°, pulse 120, respiration 52. Patient was bright and spoke a good deal against orders.

26th Temperature 99°, pulse 108, respiration 48. Patient was quite cheerful.

27th Temperature 98·4°, pulse 96, respiration 40. Patient made a rapid recovery.

III. PLEURO-PNEUMONIA.

Mr. J.P.—Aged 4 years, complained of fever, headache and pain on the right side of the chest on the 25th March. Temperature was 103·2°, pulse 120, respiration 50.

26th Showed all signs of pleuro-pneumonia right side, an injection of 1 gr. Iodum was at once given and produced no reaction.

27th Temperature 100·6°, pulse 90, respiration 24.

28th March to 8th April. Temperature, pulse and respiration were normal.

From 9th onwards, the temperature began to range between normal in the morning and 100° to 103° in the evening; there was cough, a few moist sounds all over the chest. Pulse and respiration were never more than 120 and 30 respectively, but patient complained of great weakness.

18th An injection of 1 gr. Iodum was given. Temperature in the evening was 97·2°, pulse 64, respiration 18. The temperature never rose again, cough gradually disappeared and the patient was soon well again.

IV. ENLARGED SPLEEN.

I have a very large number of cases of enlarged spleen on record varying from one-finger breadth enlargements below the costal margin to spleens almost filling the abdomen. The number of injections depend on the size of the spleen and to a

great extent on the chronicity of the enlargement. Injections were administered every second or third day. As far as it could be ascertained almost all the splenic enlargements were post-malarial and the oral administration of iron, arsenic, quinine and magnesium sulphate helped to improve the general anæmic, run-down or cachetic state of the patients.

V. CELLULITIS.

Mr. L.—aged 40, had a very severe attack of cellulitis of the left arm and elbow and the usual applications with several incisions failed to effect any appreciable improvement when a single dose of 1 gr. Iodine brought the temperature sleek to normal, bettered the general condition of the patient and another three injections saw his arm well again.

VI. ERYSIPELAS.

Mr. S., aged 35, a rather poor man, had erysipelas involving the entire right side of the face including the eye—five days' duration. It looked as if the man would not recover or that he would lose his eye; three injections of Iodine put him right.

VII. CONFLUENT SMALL-POX.

Mr. S.—aged 38, had a very bad attack of confluent small-pox of seven days' duration. Temperature 100°. He was given an injection of 1 gr. of Iodum which caused a burning sensation all over his body immediately after the injection, but the temperature remained stationary. On the next day, two grains of Iodum were administered. The temperature which was 99·6° rose to 103° within an hour of the injection.

Two days later, a third injection of Iodum—two grains—sent the temperature from normal to 100°, but became normal again by evening.

By this time all the scabs had fallen off and the skin was quite clean and there was little suppuration; the eruption was painted with tincture of Iodine daily and the peculiar smell disappeared within three days after admission.

There was no asthenia and within 15 days of the attack, the patient was up and about.

VIII. ECZEMA.

Mr. K.—My own servant, aged 30 years who was in good general health, first had eczema on the dorsum of the right hand which spread up the fore-arm, then spread to the left hand and fore-arm and finally to the legs. He also got an abscess on the

right thumb and right big toe. All imaginable remedies and specifics recommended by French, British and American authorities were tried, then an auto-vaccine was prepared and used—and finally, he was given x-ray exposures—all to no avail in spite of the special interest I took in the case as he was a good and honest servant. After about four months he said he would probably die of this disease for he was very dejected. I put him on intravenous Iodine injections; with the fifth injection, there was a marked change for the good and ten injections brought him to his old self again. He felt no reaction whatever after the injections.

BEFORE IODINE INJECTIONS.

Wassermann was negative.

ABSOLUTE COUNT.

R. B. C's.....31,50,000 per C. M. M.
W. B. C's.....10,000 ,, ,,

DIFFERENTIAL COUNT.

Polys.....50 %
Lymphos.....43 %
Large Monos.....5 %
Eosinos.....2 %

After six injections.

R. B. C's.....40,00,000 per C. M. M.
W. B. C's.....18,750 ,, ,,

IX. RHEUMATOID ARTHRITIS.

Mr. A. R.—Aged 36, had an acute attack of rheumatism which became sub-acute and dragged on for a long time. Blood culture was negative. Urine culture showed diplococci of no pathogenic importance. Wassermann was weakly positive, although he denied any history of syphilis. 40 c.c. of rheumatism Plylacogen (P.D. & Co.,) did no good. Four injections of Neosalvarsan beginning with 0·3 grammes and ending with 0·9 stopped the fever but the patient was still bed-ridden on account of the severe pain in the lumbar spine and all the joints of both the upper limbs excluding the shoulder joints. After three months he was given Iodine injections which worked wonders in the words of the patient himself who was moribund for about a week at the commencement of the illness.

X. ULCER.

Mr. H.—Aged 35, had a very indolent ulcer on the dorsum of his left foot extending from the root of the toes to about two

inches above the ankle. He tried every kind of remedy Western and Eastern, prescribed by European and Indian doctors, but to no avail. It occasionally used to break down and the ulcer used to again assume its large size. The margins of the ulcer were thickened, the tendons were exposed and the base was whitish. Six injections of Iodine of two grains each cured the ulcer.

Iodine can be administered in all cases of toxæmia, sépticæmia, pyæmia, chronic enteritis, chronic ulcers and in a host of other conditions and very often with dramatic results. It may be said that Iodine is a systemic treatment of bacterial invasion and my optimism is not unwarrantable as experience has hitherto shown me, and I consider the future of intravenous Iodine treatment has immense potentialities—EXPERTO CREDE.

CASES AND COMMENTS.

ERYSIPELAS

BY

M. A. RAMACHANDRA RAO, M.B., C.M.; CHIEF MEDICAL & SANITARY OFFICER, MAHARAJA'S HOSPITAL, PUDUKOTTAH.

I find in your April issue an article from the pen of Mr. G. D. Raghunatha Row on "Erysipelas." He says that "Tinc. Ferri Perchlor" applied locally acts as a charm and wishes to know other's experience in the matter.

Perhaps Mr. Row quite forgot that Tinc. Ferri Perchlor treatment both locally and internally is a time-honoured one, and there is nothing wonderful or special about it. To produce the maximum effect, the drug must be administered in drachm doses, along with quinine sulphate and magnesium sulphate. This combination, though said to be very good for erysipelas, yet in my opinion, does more harm than good. It at once upsets the stomach and causes incessant vomiting. I have observed this phenomena in a number of cases. Mr. Row's case must have been a very simple one, or else Tinc. Ferri would not have acted as a charm. I can cite more than a dozen cases where Tinc. Ferri failed to produce any impression on the spreading margin of the disease. Of course, in mild cases it is good. Such cases even without treatment get well if the part is kept aseptic. But in

severe cases, it is no good and in facial erysipelas it is quite useless.

Erysipelas is an acute infective disease, characterised by a spreading inflammation of the skin and general febrile disturbance due to the presence of the "streptococci erysipelatus."

Dirt and insanitary conditions favour its development. Important predisposing causes are chronic alcoholism, chronic Bright's disease, recent delivery and the existence of wounds or abrasions. The virus clings to rooms and furniture and can be conveyed by a third person.

The spreading raised red margin is characteristic of the diseases and pain will be elicited in that margin. In black subjects this will not be clear.

I am not going to talk of the mild varieties which will resolve whether you treat them or not. Of the severer types, those appearing in the face, are more serious than in other parts of the body. The mortality in facial erysipelas is very high. The reason is quite clear. Owing to nearness to the vital centres, the infection spreads along the lymphatics to the meninges and brain, causing inflammation there. Consequently, the patient becomes wildly delirious, and dies at the end of a week from the start. I have seen 3 cases of facial erysipelas all in young graduates, proving fatal within a week of onset. All the cases neglected to start with for 3 days and came for treatment on the 4th day when they noticed the swelling increasing. In spite of the best treatment on the lines of the latest improvements, (viz.,) scarification, intravenous injections of anti-streptococcus serum, intravenous Tinc. Iodine, etc., all the cases died. My experience has been confirmed by brother medical men. As regards the erysipelas in other parts of the body, however virulent they may be, most of them have been controlled and cured by the above lines of treatment.

TREATMENT.

The multiplicity of remedies advocated for the treatment of erysipelas, is the best proof that no specific exists to arrest the infection.

LOCAL.

The following applications have been found good and have been advocated.

(1) camphor and chloral (1 part of latter to 3 of the former);

(2) Ichthyol collodium ;
(3) application of ice-cold water ;
(4) an ointment of chlorinated lime 1 part, and 9 parts of paraffin ointment.
(5) Hot compresses of physiological salt solution ;
(6) Ichthyol *ointment* ;
(7) Gauze saturated with sol. of phenol (1 to 2 %), boric acid (saturated sol.), picric acid (1 p.c.) sodium salicylate, 5 p.c. and resorcin 2 to 5 %, lead and opium wash ;
(8) Magnesium sulphate in saturated sol. is applied with compress, kept constantly wet with the solution and covered with oiled silk ;
(9) Carbolic acid, painted and washed with alcohol ;
(10) Painting with Tinc. Ferri Perchlor.

GENERAL TREATMENT.

(1) Good stimulant feeding (viz) milk, beef-tea, eggs and champagne ;
(2) Tr. Ferri mix. if the patient tolerates, otherwise useless ;
(3) Bowels well-regulated ;
(4) Relieving restlessness *viz.*, by anodynes.
(5) Sponge bath to eliminate toxins.
(6) Heart to be watched.
(7) Injection of anti-streptococcus serum intravenously alternating with intravenous Tinc. Iodine till the temperature falls and the disease controlled. In moffusils where the serum is not available, Tinc. Iodine injections intravenous on every day are the best till temperature falls.

What Mr. Das describes in January issue is a case of erysipelas of scalp which is curable if treated on the above lines. But I wish to know how many cases of pucca facial erysipelas, he has cured by the application of creosote lotion and the administration of his mixture.

In a case of a child 10 months old, erysipelas began to spread from a boil in the right gluteal region. It went on spreading along the right leg till the toes of that side were reached, next, it spread to the left gluteal region, from thence, it spread to the left leg till the toes of that side were reached. Lastly it resolved. Of course, all along the child was treated with Tinc. Ferri application externally. Ferri mixture has to be stopped as the child could not stomach it. The child was getting injections (subcutaneously) 2 c.c. of the polivalent anti-streptococci serum (P. D. & Co.,) every day till 10 c.c. was injected, when the disease showed signs of control.

What does Mr. G.D.R. Row say of this case? Why not Tinc. Ferri act as a charm?

ERYSIPELAS

BY

R. CH. PANDA, L.M.P.

MEDICAL OFFICER, PARIKUD, DIST. PURI.

Having gone through the article 'Erysipelas' by Dr. G. D. Raghunath Rao in the April issue of the "Antiseptic," I refresh my knowledge of the two serious cases, I treated with Tr. Ferri Perchlor in the course of last year. The exact way how it acts on the inflammatory tissues is the concern of the practical physiologist, but I strongly advocate the use of this drug in every inflammatory condition, as I found its wonderful effect in many of my cases.

In the latter part of May 1925, a healthy Hindu male, aged 28, came to my dispensary with the following history :

> "Three days ago, accidentally, a small particle of the dry bamboo got into his right palmar skin. He got it removed by the barber. On the 3rd day, there was slight pain at the site of injury. Thinking that there would be some portion of the F. B. inside, he came to the dispensary."

On examination there was nothing found at the site. Not even a mark of the injury. The part was painted with Tr. Iodii and he was advised to foment the part once or twice.

One week after the patient came again, to my surprise, with a deep palmar abscess. The palm was swollen, painful, brawny and tense. Very little fluctuation could be elicited due to the thick facia. The patient had high fever for the past two days constipated with a coated tongue.

TREATMENT.

Though there was little fluctuation, the local conditions encouraged me to lay open the part with my sharp bistury in

between the two arches of the palm. A thick curdy pus was squeezed out, the cavity was irrigated with H_2O_2 and tightly plugged with gauze and bandaged. A purgative of calomel gr. 4 and sodii bicarb gr. 5 was given at once and the following mixture was prescribed :

Rx.	Mag sulphas	3ii.
	Tr. quinin amonh	3 iss.
	Tr. Fingiberis	3ii
	Aqua ad	oziii
	M ozi T.D.	

As usual the wound was dressed on the 2nd and 3rd day with no abnormal signs of any kind. The patient's general condition was good and there was nothing to complain so for.

But on the fourth day, I found to my great surprise, an extensive cellulitis of the whole of the fore-arm on its flexor aspect.

It extended from the palm to the elbow joint. The patient had again a febrile state. Locally the part was much swollen, very painful and tense, he could not move the hand freely, but there was nothing abnormal in the wound, neither pus nor any other foul dicharge.

Soon after the patient came to the dispensary I got the wound re-dressed and fomented the whole part thoroughly. Again a purgative was given with the above mixture. The fomentations were repeated every fourth hour. With all this, I found no improvement by the next morning. The patient had a severe attack of fever with intense pain in the arm.

Next morning, I gave up the fomentations and left the wound unbandaged (only covered with gauze dipped in cyllin lotion) and began to apply Tr. Ferri Perchlor over the inflammatory region. I repeated the application once in every 4 hours and in the evening, the whole forearm was bandaged with cotton wool.

The effect of Tr. Ferri Perchlor was so charming that the patient had nothing to complain the next morning. He had sound sleep last night. The pain had gone down and the swollen part became alright.

Tr. Ferri Perchlor was applied twice next day and then it was stopped. The wound was dressed for 6 days more when the patient was discharged cured.

2. The second case was of a boy aged 10, brought to the dispensary with a bull gore wound at the medial canthes of the right eye. There was some abrasion but no danger to the eye.

TREATMENT.

On the 1st day the part was cleaned of all dirt and Tr. Iodii was painted round the abrasion and the part was bandaged. But, the next day the boy had an extensive cellulitis of the whole of the right half of the forehead. There was intense pain and all the sign of inflammation. The boy had an attack of fever in the night.

Remembering my previous case I lost no time to take to the recourse of applying Tr. Ferri Perchlor to the entire part and I advised the parent to repeat the application once in every 2 hours. Again I found the charming effect of the drug in reducing the inflammation within 8 hours after its first application.

The above two are the most important cases besides a large number of minor cases in which I use Tr. Ferri Perchlor for its magical action.

ERYSIPELAS

BY

P. PALANIYANDI, L.M.P. MEDICAL OFFICER, MUNICIPAL DISPENSARY, TEPPAKULAM, TRICHINOPOLY.

With reference to the note on the treatment of erysipelas that appeared in your last issue, page 215, I like to write about a case of erysipelas that was treated by me early in the month of March 1926 before I got the issue. About the beginning of March, in the morning one day, a Mohammadan boy aged about 6 years, came to my dispensary with swollen face including the eyelids and the fore-head. The swelling was tender and the boy had a temperature of 103°F. Pulse was rapid and counted 120 per minute.

On examination I found a septic wound in front of the scalp close to the fore-head. The wound was due to an accidental fall while playing at home on the previous day, for which the boy was carelessly treated at home.

Concluding, the boy had developed erysipelas as a result of the septic wound. I cleaned the wound with 1-20 carbolic lotion, widened it to bring out the accumulated discharge, scissored off the unhealthy margins, touched the wound with pure carbolic and spirit and applied hot boric poultice over it. The swollen

part was thoroughly painted with Tincture Ferri Perchloride and a dose of mixture Alba was given to open the bowels. Application of *Tincture Ferri Perchloride* over the swollen part was carried out three or four times that day. In the evening a dose of septic mixture containing

Tr. ferri. perch.	m. v.
Pot. chloras.	gr. v.
Quin. sulph.	gr. iii.
Acid sulphuric. dil	m v.
Aqua	oz. i.

was given and he was put on milk diet only.

Next day the boy was produced to me with his swelling half reduced and in a better general condition of health. The above treatment was repeated and the wound was dressed antiseptically. On the third day, the swelling almost disappeared and the boy had much improved. The treatment was repeated for two days more till the swelling completely disappeared and the wound appeared very healthy. After a week or so he was thoroughly cured.

In conclusion, I have the pleasure to inform my co-brethren who read this article to freely make use of the simple drug, the Tincture Ferri Perchloride for the cases of erysipelas that are commonly met with in daily life.

ERYSIPELAS

BY

RAJA RAM NAYAR, M.P.L. IN-CHARGE, CIVIL HOSPITAL,
NANKANA SAHIB, THE PUNJAB.

In January 1926 issue of the 'Antiseptic' on page 35, appears an article that creosote lotion is the best for local treatment of erysipelas and another article appears on page 215 that Tr. Ferri Perchlor acts like a charm.

Well, I agree with both the gentlemen to a certain extent. Creosote lotion does good in some cases but proves very irritant in others. Tr. Ferri Perchlor is not an irritant but has not proved so efficacious in my hands.

I believe mostly on general treatment.

I have treated many cases of erysipelas whilst I was on field service and many over here and will cite two of them just to describe my routine treatment of the disease.

Case No. I.—I attended a sikh lady, aged fifty years, on 21-11-25 with swelling, redness and œdema of the left pinna with temperature 101, pulse 100 and respiration about 21. She also gave a history of erysipelas eight years back.

I put her on ordinary saline and diaphoretic mixture with a paint of Iodine to the pinna.

I attended her again in the evening when she complained of severe pain over the pinna and the temperature was also 102°. I prescribed anti-phlogistine locally.

I attended her again in the morning of 22-11-25 when her temperature was about 105 and whole of the left face swollen, tender and painful, the swelling was spreading towards the right side of face, neck and scalp.

She passed a restless night and could not retain anything. I painted the whole of her face, forehead and neck with Tr. of Iodine and injected intramuscularly 25 c.c. of anti-streptococci serum (Burroughs Wellcome & Co,). I visited her again in the evening and found that her temperature was 103 but the swelling was spreading all round. I did another intramuscular injection of 25 c.c. of the serum at about 6 P.M. As she was restless for the last two nights, a tabloid of morphia atropine was injected subcutaneously.

On 23—11—25 at about 8 A.M. she slept well for a few hours and passed a comfortable night. Her temperature was 99 and the swelling was spreading to the right of face and pinna slightly fading on the left. I gave her no medicine by mouth excepting a cup of warm sweetened milk with half an ounce of castor-oil in it to relieve the constipation.

At 5 P.M. the temperature rose to 102, hence I injected another dose of 25 c.c. of the serum and at about 9 P.M. an injection of morphia et atropine for sleep.

On 24—11—25 at about 8 A.M. The swelling was much less, the temperature sub-normal and she passed a comfortable night. I injected 10 c.c. of the serum and in the evening, she had no fever after it. The convalesence started and she was cured altogether without any further injection.

Case No. 2. A Hindu lady was admitted into my hospital on 8—2—26 and discharged on 20—2—26 with the same kind of treatment.

CONCLUSION.

1. Though it is a serious disease yet the cure is cent per cent. if the treatment is started early.

2. Though the local treatment may be very intensive yet the swelling continues to advance more or less rapidly with a continuous slightly raised margin and as it spreads to the new region it fades away from those already involved leaving a light brownish stain and fine brawny desquamation *i.e.*, if it starts from one pinna, it disappears from the other and if it starts from the scalp and forehead, it travels the chest, abdomen, thighs, legs, feet and disappear from the tip of toes.

3. Anti-streptococcic serum is the only best for treatment. As the patients cannot retain any medicine, so it is of no avail to push anything by mouth.

4. Tonics like quinine, iron, and strychnine are needed in convalescent stage.

5. Sleep must be induced by hypodermic injection of morphia et atropine.

6. Bowels may be moved by soap enema or addition of almond-oil or castor-oil to sweetened warm milk.

N. B.—Any comment on the above few lines will be welcome.

The Antiseptic

JUNE, 1926.

REJUVENATION OPERATION.

So much has been written both for and against the views on rejuvenation, of Professor Eugen Steinach of Vienna, that it is highly desirable, an authoritative survey of his theories and practice should be presented to the Medical Profession which would put forward, in scientific language and without undue bias, the claims of his operation. In this connection, it will be interesting to know something of the previous work of Steinach, which can be summarised under four experiments.

(1) *Castration and Spaying Experiments.*—These were conducted to produce the effects of eunuchism, thus scientifically covering the ground already traversed practically by stock-breeders for many centuries.

(2) *Homoplastic Experiments.*—Having produced asexual conditions in his castrated or spayed animals, he next tried the effect of transplanting male and female gonads, from similar animals, beneath the abdominal muscles of these castrated or spayed subjects and found that he was thus able to restore the lost secondary sexual characteristics in cases where the transplants "took" successfully. This is what Steinach calls the homoplastic method of restoring lost sex-characteristics.

(3) *Masculinisation and Femininisation Experiments.*—Working on castrated or spayed guineapigs, he next tried implanting testes in the females, and ovaries in the males, and so produced reversal in the sex-characteristics of the animals experimented on, males showing female proclivities, females, male.

From this, and from his homoplastic experiments, the obvious deduction was that the hormones which governed the sex-instincts

and characteristics were manufactured in the respective ovaries and testes which had been implanted; and as a corollary that these hormones existed already normally in the ovaries and testes of intact animals. All this was ground already covered, and created no controversy. The next point was to find out, if possible, in what part of the respective gonads the hormones were produced. For this purpose, testes which had been successfully transplanted were excised and examined histologically. It was then found that the spermatogenic cells in the transplants had atrophied, but that the interstitial cells showed marked proliferation. This naturally suggested that the male hormone was probably manufactured in the interstitial cells, and was not a by-product of the spermatogenic cells, as had hitherto been supposed.

(4) *Autoplastic Experiments.*—The next step was obvious. Instead of experimenting with transplanted testes Steinach thought: "Why not tie the vasa deferentia in normal animals, cause the spermatogenic cells at atrophy from back pressure, and then see if the hormone ceases to function and eunuchism is produced?" Experiments of this nature were therefore carried out, and after an interval, the testes operated on were examined. Again, it was found that the spermatogenic cells had atrophied, just as in the transplants, and again, that the interstitial cells had increased in size and number. In addition, it was also seen that eunuchism had not occurred, and that therefore apparently the hormone producing body had not been affected.

Indeed, so much so was this not the case that instead of producing eunuchism by destroying the spermatogenic cells, a new element in the results—rejuvenation—began to become a dominant factor. Previously it had been noted that, when castrates had had fresh testes successfully implanted in them, the symptoms of eunuchism had disappeared. Later it had been found that when testes from young rats had been implanted into intact old males, those males had recovered a considerable amount of youthful vigour again, and lived several months longer than the allotted span in such animals, a result due, probably, to the effect of the new hormone thrown into the old animal's circulation by the young, implanted testes. This in itself was a discovery of prime importance, which has been developed and exploited by Voronoff and his co-workers since; but it has obvious disadvantages, and, in any case, became unnecessary

after the final results of vasoligation—namely, rejuvenation—became known.

This discovery of Steinach's was due to the fact that, after tying the vasa in these decrepit old rats, the animals seemed suddenly to take on a new lease of life—their fur came back, they grew fatter, became agile and pugnacious again, even sexually potent once more. Obviously in some way the factor producing the male hormone had been augmented. What tissue then was producing this excess of hormone? The only tissue increased was that of the interstitial cells. Steinach therefore postulated that it was this increase in the interstitial cells that had stimulated the extra production of hormone; and he accordingly named these interstitial cells the "puberty gland."

So much for the question in the male. In the female, however, it is not possible to proceed on similar experimental lines – the ovary has no duct one can tie. But on analogy it seemed probable that the hormone in the female existed not in the ova but in the stroma of the ovary. Here X-rays were brought to the aid of the experimenter, and by careful graduated doses, the ova of certain animals were sterilised, and some rejuvenation noticed.

To apply these results to man was the final and obvious step; and it was here that Steinach suddenly found himself involved in the acrimonious controversies which are still being pursued. All sorts of objections were raised—theoretical, sociological, religious, psychological.

The technique of the operation is as follows: Under local anæsthesia the cord is exposed, either outside the inguinal canal or in the scrotum. Dr. Schmidt prefers operating through the scrotum, and tying the vas opposite the globus minor, as thereby the damming effect on the spermatic fluid is more marked, especially in old men with a feeble peristaltic wave. Whatever position is chosen, however, when the cord is exposed the vas is separated by careful blunt dissection from the other structures for a distance of 1 inch. Particular care is taken to separate off the artery to the vas, and not to damage the spermatic artery veins.

After the vas has been laid bare to the requisite extent, two thick silk ligatures are tied close together at the upper end, and two at the lower end of the cleared cord.

After ligature a portion of the vas, half to three-quarters of an inch, is excised between, and the stump at the lower end attached by a suture to the subcutaneous tissue near the upper end of the incision, thus maintaining the suspension of the testes. The wound in the scrotum is then closed. The patient should be confined to bed for 36 to 48 hours, and the testes suitably supported.

As a result of the operation all the sperma-forming cells atrophy, with the exception of the so-called Sertoli or basal cells which form part of the basal epithelium. The interstitial cells, filling the spaces between the seminal canaliculi, containing the Leydig cells, immediately begin to proliferate, taking the place of the desquamating seminal epithelium. It is to the Leydig cells, associated probably with those of Sertoli, that Steinach, has given the name of puberty gland. These cells, he considers, are responsible for the internal secretion of the testicle which controls and activates the male characteristics, just as the analogous cell-islets of Langerhans in the pancreas are supposed to control sugar metabolism. After several months a more or less complete regeneration of the seminal cell tissue sometimes takes place, but the hypertrophy of the Leydig cells nevertheless persists.

As to the results obtained there is no longer any doubt. A marked physical and mental rejuvenation does follow in selected cases. The theory that such improvement is due to suggestion has now been exploded. The fear that the improvement produced would be merely temporary has proved unfounded. Cases have remained permanently improved now for over five years.

Whether the results obtained are due to the breaking up of spermatic protein, or to an increase in the internal secretion produced by the interstitial cells, is a matter merely of academic interest. Steinach does not appear to be dogmatic on the point. The fact that regeneration of the spermatic cells sometimes occurs several months after ligature, is not an argument either for or against his theory of the puberty gland.

CURRENT TOPICS.

MEDICINE AND THERAPEUTICS.

Treatment of General Paralysis.—A Starcke (Nederl. Tijdschr v. Geneesk., April 19th, 1924, p. 1751) describes the following method of treatment, which he considers to be as effective as inoculation of malaria and much less dangerous. An injection of ordinary boiled milk is given in the morning. The milk must not be shaken, or else clots will get into the syringe. The first dose is 40. c. c. The injection is usually followed by a rise of temperature in the evening to between 101·2° and 104°F. After the injection the patient should walk about or be massaged for a few minutes to promote absorption of the milk. In the evening, when the temperature is raised, an intravenous injection of neosalvarsan is given, the dose ranging from 660 to 900 mg., with the result that the temperature rises still higher. If it reaches 105·8° cold packs should be applied until it falls below 104°. This procedure is repeated every week, the dose of milk being increased so that the temperature rises at least to 102·2°. When the evening temperature has reached the level of 133·6°, a dose of 50 c. c. should prove sufficient. Large doses of potassium iodide were also given throughout the course of treatment. No symptoms of anaphylaxis were observed. Improvement may be seen at the end of a month, but if it does not occur by then, the treatment is continued, a watch being kept upon the urine.

The Venous Pressure in Pulmonary Tuberculosis.—Villaret and Martiny's conclusions are based on 200 observations. In acute exacerbations of pulmonary tuberculosis the venous pressure was high in the miliary form; it was little changed in spleno-pneumonia. High venous pressure with ulcero-caseous tuberculosis may reveal a previously unrecognized affection of the lymph glands, latent effusion, or tendency to hemoptysis. A high pressure accompanied fibroid or fibro-caseous tuberculosis. Measurement of the venous pressure should be made every two weeks; it may complete the auscultation and Rœntgen-Ray findings, and is valuable in prognosis of the local process. An increase of the pressure indicates tendency to fibroid degeneration; a sudden rise points to the menace of hemoptysis. A tardy rise of the venous pressure in artificial

pneumo-thorax, at the sixth or eighth insufflation, usually preceded phenomena of intolerance. The effect of an artificial pneumo-thorax may be demonstrated better thus than by the intra-pleural hypertension from the gas, or by displacement of the heart.

Intravenous Injection of Glucose.—Meyer used intravenous injections of 10 20 c. c. of a 10-20 per cent. solution of glucose in several hundred patients. It enhances the action of simultaneously injected digitalis and strophanthin and prevents the angina pectoris which occurs occasionally otherwise after injections of strophanthin. He had excellent results in angina pectoris when injecting the glucose daily or every other day, eventually in combination with a theophyllin preparation. He had no reason to recommend a surgical intervention in any such case with hypertrophy of the heart and high blood pressure. The blood pressure became permanently lower in many patients. True angina pectoris without hypertension and without enlargement of the heart has a much graver prognosis. Intermittent claudication was well-influenced. He recommends the treatment even in diabetics with angina pectoris.

Treatment of Pulmonary Tuberculosis with Metal Salts.—N. Lunde (Ugeskrift for Læger, January 7th, 1926 P. 1) has tested at the Lyster Sanatorium in Norway, Walbum's statement as to the therapeutic action of small doses of certain metals in a variety of infections including tuberculosis. The best results were achieved with manganese chloride, intravenous injections being given at intervals of four to seven days. Injections of small doses of salts of calcium gold and beryllium were also given, ten to twenty-six injections being given in each case. Of the 58 tuberculous patients whose treatment was completed, 31 were in the third stage of the disease and 25 of them benefited from the treatment. Of the remaining 27 patients who were in the first or second stage of disease, 24 derived benefit from the treatment which in no case seemed so injurious. In 22 cases, the rate of sedimentation of the erythrocytes was investigated and in as many as 16 of these cases there was an improvement, the rate of sedimentation being reduced by an average of 13.1 mm. in an hour. Among the same 22 patients there were 5 who gave a positive urochromogen reaction at the beginning of the treatment and in 2 of these cases this reaction became negative under the treatment. As many as 51 of the 58 patients had bacilli in the sputum at the beginning of the treatment and in 8 cases the bacilli disappeared. Comparing Walbum's system of small carefully graduated doses with Moellgaard's system of massive dosage, Lunde argues that the former is a process which stimulates the reactive properties of the tissues and thus promotes an active defence of the body by its own mechanism whereas the processes concerned when the dosage is massive are largely passive, the high concentration of the salt in question being sufficient in itself to interfere with the action of microbes in the body. Lunde believes that Walbum's system could be developed into a very effective weapon against tuberculosis.

Transmission of Dengue by Mosquitoes.—That dengue is carried by mosquitoes has long been the impression of those who have suffered from it. Lieut.-Colonel J. F. Siler and two other officers of the Medical Corps. U. S. Army have subjected the question to experiment in the Philippines and they now report that dengue is carried by Aedes Egypti (commonly called Stegomyia fasciata) the mosquito that transmits yellow-fever. A brief note of their work appears in the Military Surgeon for January, the complete account being reserved for the Philippine Journal of Science. The sixty-four volunteers who participated in the research were soldiers recently arrived from the United States and free from disease including syphilis. They were put to live in a military hospital in Manila, in a ward specially made mosquito-proof and kept mosquito-free. Experiments were made with two mosquitoes, A Egypti and Culex quinquefasciatus. With the latter the results were negative but out of 111 experiments with A. Egypti forty-seven were successful. The mosquitoes used were grown in captivity from the eggs upwards. Fertilised females were put to bite dengue patients and the infected insects were then allowed to bite the volunteers. Thus it was learned that a case of dengue was infectious to the mosquito from eighteen hours before onset to the end of the third day of the disease. The A. Egypti itself does not become infective for 11—14 days but then remains so for the remainder of life, certainly up to 75 days; infection is not transmitted to the offspring. A patient bitten by 2-10 infected mosquitoes develops dengue in from 4-10 days, usually

within six. Passage of the virus six times from man to mosquito and again to man, neither attenuated nor increased its virulence. The whole research was well-planned and carefully carried out and the complete report will be awaited with interest.

Atropine Sulphate in Acute Mania.—A. Popea, L. Constantinesco, and Giurgiu (Bull. et Mem. Soc. Med. des Hop. de Bucarest, September, 1924, p. 188) have studied the vago-sympathetic system in mental disease, with or without pathological lesions, using Danielopolu's atropine test. They have discovered that atropine sulphate has a specific action when injected intravenously in doses sufficiently large to paralyses and vagus, especially in cases of maniacal excitement. When the dose was sufficient to accelerate the heart, and to produce mydriasis, maniacal patients became less talkative and excitable; they grew drowsy and more amenable to control. In twenty cases, as soon as the test was completed, all the patients slept for three to eight hours, with the exception of two patients, who were drowsy but did not actually sleep; one other patient, general paralytic suffering from maniacal excitement, was not calmed. These patients awoke without the disturbance that usually follows the administration of hypnotics, especially of opiates, and the psycho-motor disturbance was definitely less. At the end of twenty-four to forty-eight hours the patients began to return to the maniacal state, but for many nights after the injection of atropine they slept naturally. The authors consider that these facts appear to throw light on some obscure points in the pharmacodynamic action of atropine, and cite the following authorities. Manquat states that atropine is not hypnotic in the usual sense; it only produces sleep when given in massive doses, its action appearing to be the first stage of the coma which supervenes when a toxic dose is given. According to Pauchet, however, it is a valuable soporific in disease, and Soulier reports that while belladonna stimulates normal nerve cells it calms those who are functionally deranged. Furthermore, Radovici and Nicolosco have described a hypnotic action of atropine in patients suffering from epidemic encephalitis. The present authors confirm that view, and show that the sedative and hypnotic effect of atropine corresponds with its paralysing action on the vagus. The inter-dependence of these two effects has yet to be verified, and it must be remembered that, according to Tinal, Santenoise and others, maniacal excitement is always preceded, if not produced, by a state of vagotonia. If the two phenomena are connected, the present authors think that the origin of conditions of excitement, and especially of maniacal symptoms, may be due to hypertonia, or hyper-excitability of the pneumo-gastric, which gives rise to attacks of maniacal excitement by cerebral irritation. Sleep supervening after the calm produced by atropine would then be due to fatigue resulting from the previous excitement.

Subcutaneous Injection of Milk in Infants.—A. B. Marfan and R. Turquety (Paris Med. November 7th 1925, p. 377) who have employed injections of milk on a large scale in the treatment of infants though inclined to regard the early enthusiasm for the method as unwarranted, maintain that it may be of value in the following groups of cases: (1) the severe form of prurigo or strophulus of former writers when the ordinary methods of treatment have failed; (2) more or less generalized erythrodermia exfolliativa; (3) the very rare cases in which diarrhœa in breast-fed babies interferes with growth. In these cases the injection of milk hardly ever causes a violent or early reaction so that there is a doubt as to their anaphylactic origin. Whether cow's milk or woman's milk is to be employed will depend on the mode in which the child has been fed. If combined feeding has been employed, cow's milk should be injected alternately with woman's milk. Woman's milk should be drawn off as aseptically as possible and injected undiluted. If there is a fear of its being contaminated it is best to sterilize it. Cow's milk should be boiled for at least five minutes but it is preferable to employ milk which has been completely sterilized in the autoclave. As it is impossible to determine beforehand the child's degree of sensitiveness only a very small dose such as 4 or 5 drops diluted in normal saline should be given on the first occasion. If this dose does not produce any reaction 1/2 c. c. may be injected next day. Subsequent doses ranging from 3 to 5 c. c. may be injected every two days until improvement has been obtained, but if none occurs after five injections it is useless to continue.

OBSTETRICS AND GYNÆCOLOGY.

Paraldehyde Intravenously in Eclampsia.—The intravenous use of paraldehyde has been restored to by Caldwell in the

treatment of forty-seven cases of eclampsia. The effect in the majority of cases was startling. The patient relaxed immediately and went into a natural sleep; the respirations became deeper and more regular, the cyanosis cleared up and the blood pressure sometimes dropped from 15 to 20 mm. of mercury and the pulse became dull, regular and much slower. The average dose is 2 c.c. occasionally as much as 3 c.c. injected directly into the median basilic vein. With these small doses the anesthetic action is very short but it is sufficient to allow the careful examination of the patient and to make such necessary manipulations as phlebotomy, washing out of the stomach and the rectum without disturbance to or excitement of the patient. The anesthetic action is followed by a considerable period of relaxation and allows time to obtain the phyliologic action of morphine administered at the same time as the paraldehyde. It has not been used for its curative effects in toxæmias of pregnancy but merely as an aid in controlling the patient while other means for relief of the condition are being instituted.

Puerperal sepsis.—E. A. Schumann observes that puerperal sepsis begins almost always as a localized endometritis which may remain localized with little systemic disturbance and followed by systemic absorption of bacterial endotoxin or by an entrance of the invading organisms into the blood stream. The infection may spread by continuity involving the veins of the broad ligaments or small necrotic masses may enter the tubes and cause salpingitis. General peritonitis may occur. In a few cases the infection is autogenous. The diagnosis of these several types of puerperal sepsis is most important, the author states, since any hope of success in treatment depends on interpreting correctly the exact pathological condition. Repeated physical examinations are necessary in order that the right moment for evacuation of a localizing collection of pus may be recognized. The general mortality is about 30%; but when the *streptococcus pyogenes hæmolyticus* is the causal organism the death rate is from 60 to 80 per cent. Sapræmia, localized infection, cellulitis and salpingitis carry a low mortality. The author recommends the use of pituitrin and a combination of ergot and strychnine. Septic material accumulating in the vagina should be removed by gentle irrigation at frequent intervals. Where the injection remains apparently localized in the uterine cavity attempted sterilization by Dakin's fluid is advocated, A small

rubber tube with minute perforations is introduced into the uterine cavity, a light gauze plug applied to the cervix and Dakin's solution instilled by the continuous drip method. The gauze is changed daily and should not be placed too firmly to allow free return of the fluid by seepage through it without distension of the uterus. The author maintains that the curette, the placental forceps and even the gloved finger have no place in the treatment of septic endometritis in the puerperium. Repeated blood transfusions and rectal injections of 5 per cent. sodium bicarbonate solution are advised. For the sterilization of the blood stream the use of a 1 per cent. mercurochrome solution in sterile water is advocated. An initial dose of about 30 c. c. is slowly injected intravenously with a salvarsan syringe and a violent reaction occurs in 30 minutes to 6 hours. Shock during the reaction is met with by the administration of adrenaline strychnine or other cardiac stimulants, diarrhœa by the administration of opium belladonna and bismuth and chill is treated by local external heat. The symptom of reaction usually subside within 48 hours when another injection of 30 to 35 c.c. of mercurochrome solution is given. Surgical intervention is indicated according to Schumann only when definite evidence of localization of pus is present.

Treatment of Leucorrhœa.—S. Recassens states that leucorrhœa may or may not be of microbial origin. Before puberty the vagina contains only cocci which produce an alkaline reaction but subsequently, the invasion of the genital tract by various saprophytes causes the alkaline reaction to become acid with the result that pathogenic organisms find it more difficult to grow in this medium. The acidity becomes more pronounced in certain circumstances such as pregnancy when the need for a defensive reaction is greater. The production of some forms of microbial leucorrhœa in which the glycogen stored up in the genital cells plays an important part depends on biological causes and often, on changes in the composition of the blood. Thus chlorotic girls suffer from leucorrhœa which is connected with nutritional changes in the vaginal cells and in such cases, considerable quantities of glycogen are found in the leucorrhœal discharge. Rational treatment of leucorrhœa depends on the recognition of the nature of the process; 75 per cent. of all leucorrhœas are due to the gonococcus. Strong solutions of the antiseptics most commonly

used such as thymol, carbolic acid, potassium permanganate and lysol increase leucorrhœa while weak solutions have no bactericidal action but cause a swelling of the epithelium and consequently, an abnormal increase of secretion. Moreover, repeated irrigations may give rise to the antiseptic fluid used being converted into culture medium. The inefficacy of vaginal irrigations has led to the use of the so-called "dry cure" of leucorrhœa in the form of application of aluminum oxide powder or silver nitrate. Treatment of gonorrhœal leucorrhœa with silver salts often yields satisfatory results but sometimes very obstinate cases are encountered in which the infection has invaded the blood stream. Recassens adds that employment of such drugs as sandal-wood oil, cobaiba cubebs and arrheol on the ground that they are eliminated by the kidneys and so come in contact with the infected urethra is illusory as in 90 per cent. of the cases gonococcal leucorrhœa is not accompanied by urethritis and it is only in cases in which the bladder is involved that the use of these drugs is justified. Treatment by intravenous injection of various antiseptics such as gold or colloidal copper has not yielded the desired results but has merely given rise to the appearance of casts in the urine.

CORRESPONDENCE.

DR. OWEN BERKELEY HILL ON "THE POPULATION QUESTION".

TO THE EDITOR, "*The Antiseptic*," MADRAS

SIR,

It was only the other day, that the correspondence with the heading "The Population Question", which appeared in the February number of your journal, under the signature of Dr. Owen Berkeley Hill, accidentally came to my notice, and I began to read it with great interest. But to my utter surprise, I found that the letter contained many objectionable and unjust remarks, which the writer has cast on my countrymen and our ancient civilisation. I am really astonished to see the highly erotic ideas that the writer possesses about India, although he has passed a major portion of his life in this country, I believe, and with his shallow and distorted knowledge, he feigns to have mastered the Indian problems, so much so, that he uses no scruples to slur at a people, whose culture and character stand out, even to this day, as the beacon-light of purity to the world at large.

The doctor has unhesitatingly remarked "a people whose greatest literary masterpieces are pre-eminently erotic..... Is it worth while to preach chastity, continence, contraception in a land which gave birth to Vatsyayana?" The writer should be told, that the people of India do not want him to preach chastity to them, but that he could preach it better to his own men, to whom it may be more necessary, and for his better knowledge of India, it may be pointed out to him, that the land which gave birth to Vatsyayana also gave birth to Vyasa, Vasishsta, Valmiki, Manu, Gautama, Sankar, Ramakrishna, and many others, whose life-example of self-purification and continence will ever remain as a perpetual guide to the moral elevation of not only their own countrymen, but to any people on earth.

The writer has next attacked the army of the Sadhus who live like "drones" on the labour of the poor workers of India. The doctor is unaware of the fact, that with the exception of some wandering and professional Sadhus, the majority of them do not live by begging from the poor. It is the custom among Hindus, from ancient times, that the princes and the rich lay out funds for the maintenance of the ascetics who have forsaken the world. In various places of pilgrimage in India, there will be found "Maths", "Akharas" and the like, where these Sadhus are provided out of such funds. The Hindus maintain this army of Sadhus for the cause of their religion, as an army of soldiers is maintained at any cost for political causes.

The last attack has been directed towards the preservation of useless cattle by the Hindus, as a result of their cow-worship, thereby sustaining a tremendous annual economic loss to the country, amounting to 144 crores of rupees, and yet they claim to be "civilized"! In the doctor's opinion, the surplus cows and bullocks should be slaughtered, when their bones would be of more use as manure, and their hides as boots. Really these superstitious Hindus have neither the brain nor the soul to realise this common wisdom and in doing "veneration" to an animal, have degraded themselves to the level of savagery! But the doctor should know that the Hindu is not a calculating man like himself, in all spheres of his life, but there is a higher sense in him, which bids him to take care even of a lower animal, when it is old and infirm, and not kill it after its services have been enjoyed. Any right thinking man will admit, that

the "Hindu Superiority" lies here. Leaving aside, however, the question of superiority, let us turn again to the economic point of view, and I like to know from Dr. Berkeley Hill, the actual figure of the total annual loss that the country suffers from the slaughter of the useful cattle, which in flesh and blood would have been better utilised *in agriculture* and other purposes than satisfying human stomach. Will the doctor tell me, if it is really the preservation of the useless cattle or the slaughter of the useful ones, that is becoming the great menace to the rearing of the babies, for whom he is taking so much interest?

I hope, the doctor will lend his careful judgment over the above questions, and will henceforth, change his views about India and her people, and look upon them with greater respect than he has hitherto done.

May 1926.
CHINSURA.

Yours faithfully,
KHAGENDRA NATH CHATTERJEE,
M.B. (Cal.)

TO THE EDITOR, *The* "*Antiseptic*" MADRAS.

SIR,

Many people cry down cocoa-nut oil as the cause of dyspepsia, so much so one famous physician used to say 'West Coast Dyspepsia' meaning thereby that the cause is the frequent use of it. One has to believe whether it is due to the modern method of preparing it whereby the pure oil is mixed with that coming from the external brown covering of the copra which likely contains the same irritant oil as is got when the shell is burnt. If that be so, an opinion from some authority would be welcome to know whether the old bullock-driven mill oil is better than that got from modern machinery which possibly extricates everything from the kernel, as well as from the covering and sets up chronic gastric irritation.

'A Doctor.'

TO THE EDITOR, "*The Antiseptic*," MADRAS.

SIR,

From the Lecture delivered by Dr. S.P.B. Naidu, special Plague Research Officer of Bombay at Osmania General Hospital, Hyderabad (Deccan.) on 22nd March 1926 and from personal talk with him I gather that the authorities of Parel Laboratory at Bombay are seriously thinking of improving the present Haffkine's prophylactic fluid.

They have found that the clear filtrate or supernatent fluid of Haffkine's prophylactic is quite efficacious and even has better protective power against plague than the whole fluid and that the sediment is not essential.

This fact and even more, I have found from personal experience and experiments performed on rabbits at Hyderabad and the results were published in the Indian Medical Record, 3rd Jan. 1900 and in the British Medical Journal on May 12th 1900, a quarter of a century ago. A little history of Haffkine's fluid is worth-mentioning as it is interesting. In early days, Haffkine's fluid was supplied in ordinary medicine bottles, corked and sealed with sealing-wax. I was the first to show that some bottles were found contaminated and that the use of cork was objectionable as it could not be sterilised and I suggested that the fluid should be supplied in sealed tubes. (Indian Medical Record 10th January 1900). The present sealed bulbs known as Maynards bottles were introduced, if I remember correct. in the year 1906, a long time after Mulkowal accident in 1902. This unfortunate accident occured in the Punjab when 19 persons died of Tetanus after inoculation of a certain single bottle of plague prophylactic and the operation of inoculation was performed in the open. The cause of the accident was due to the infection of the bottle by the cork falling on the ground while opening it and thus getting infected. This cork, instead of being singed or burnt over a spirit flame, as suggested by Haffkine, was merely dipped in carbolic lotion before replacing it. A drop of this carbolic lotion must have trickled into the prophylactic broth-fluid and thus the tetanus germs were introduced into it, as it is well-known that earth contains spores of Tetanus. As the bottles were closed with cork in those days it was impossible, sometimes, to prevent the cork falling while opening the bottle.

Before the introduction of sealed bulbs and when cork was in use, Haffkine's prophylactic fluid was re-sterilised here in Hyderabad for three consecutive days at 60°F. for 15 minutes each day and was then issued to Medical Officers in the Districts. It was then found that the fluid re-sterilised produced less reaction, both local and general, than the fluid unresterilised.

Up to the present day, the general opinion is that the protection produced by Haffkine's fluid is due to the action of dead plague bacilli and their products, and hence it is directed that the bottles be well-shaken before use, so that both the dead bacteria

and their products are used in inoculation. In 1900, I found and published my observation that the filtrate of Haffkine's fluid when freed from sediment containing dead plague germs is not only efficacious in producing immunity but it is better than the whole fluid as it does not cause indurations at the seat of injection.

These indurations or lumps generally last for three or four months and get slowly absorbed. They contain sterile pus as shown by me. I once made a personal demonstration of the presence of sterile pus to Sir Almroth Wright, a member of the first Indian Plague Commission, on his visit to Hyderabad. I found also that the rabbits inoculated with whole Haffkine's fluid lose weight during absorption of these indurations. As I found the filtrate has a better protective power and is devoid of producing hard lumps, my usual procedure in using the Haffkine's fluid is this.

The bottles after being well-shaken are kept aside some days with the pointed end directed upwards. After a few days it is found that the fluid becomes quite clear and at the bottom, one finds an ash-coloured sediment which consists of dead plague bacilli. After opening the bulbs I withdraw the clear supernatent fluid and inject people with it in required quantities, rejecting the bottom sediment. With this I found less reaction and better results without producing any harm or induration and have been always satisfied with the results. One great advantage in using filtrate or clear supernatent fluid only is that contamination can be easily detected as the fluid becomes turbid on contamination. In that case the bottle should be rejected.

HYDERABAD-DECCAN.
Dated 28th March 1924. } S. MALLANNAH.

BOOK REVIEWS.

A CLINICAL INDEX OF RADIUM THERAPY.

By A. E. Hayward Pinch, F.R.C.S., Medical Superintendent, The Radium Institute, London; with the clinical aspects of the work of the Research Department, May 1919 to December 1924, by J. C. Mottram, M.B., D.P.H., Director of the Pathological Laboratory, and the evolution of the present day technique of the preparation of radium and Radon Apparatus by W. L. S. Alton, F.I.C., Director of the Chemico-Physical Laboratory. Pages 164. Published with the authority of the Committee, Riding House St., Portland Place, London W. 1.

This volume is written with the object of bringing to the notice of the general medical practitioners, the wide range of disease covered by Radium therapy. It is a notes of the actual work carried out at the Radium Institute, the clinical signs and symptoms recorded, the lines of treatment adopted, and the results obtained being all derived from a study of the patients' case sheets. The important clinical facts which are of diagnostic importance and which determine the advisability of Radium therapy are briefly discussed. Unnecessary exhaustive studies on the Etiology, Pathology and signs and symptoms are conveniently avoided. Absolutely essential points on the Physics of Radium are discussed, and for more detailed information the students have to refer to bigger text-books. A short summary of the action of Radium on the normal tissues and organs is also given. The index is divided into special sections, to facilitate ready reference. The book will be of great use to the student of medicine as well as to the research worker in this advancing branch of the art of healing.

DEVELOPMENT OF OUR KNOWLEDGE OF TUBERCULOSIS.

By Lawrence F. Flick, M D., L L.D., co founder of the Rush Hospital for Diseases of Chest, ex-President of the International Anti-tuberculosis Association, etc., and the author of "The Crusade against Tuberculosis—Consumption, a curable and preventable disease". Published by the author, 738, Pine St., Philadelphia, 783 pages. Cloth S. 7-50.

Tuberculosis has been an affliction from the dawn of civilization. Dr. Flick leads us, in this book, from the times of the ancients when they discussed the contagiousness of Tuberculosis and its entity with the pearl disease of cattle, along the paths of darkness through the middle ages with accounts of their horrible decoctions to Mortons' "Phthisiologia" of the 17th century. Thence he proceeds step by step through Auenbruggers discovery of percussion, the work of Stark, Reid and Guillie in England and Scotland, and Lawrence of France, who died of Tuberculosis at 46 years, who discovered the Stethescope, taught the value of auscultation and revived Auenbruggers methods of percussion and cleared many pathological controversies to Virchow, Villemine and then Koch, who cleared up the mysteries and paved the path for the extermination of this horrible disease. The book is written in simple language and is instructive. It will surely interest the student, the research worker and the practitioner.

ORGANIC DERIVATIVES OF ANTIMONY.

By Walter G. Christiansen, Instructor in the Harvard Medical School. Pages 229. Published by Messrs. the Chemical Catalog Company, Inc., 19, East 24th Street, New York, U S.A.

The preparation of this monograph was undertaken in connection with a study of antimonials which is being made in the departments of Pharmacology and of Tropical Medicine at the Harvard Medical School. A consideration of these substances is of great importance in the treatment of some tropical diseases, especially Kala-Azar. Throughout the literature there are various discussions on these compounds, but there is no comprehensive compilation of these results to which one may turn. The present book correlates

these widely-scattered data in such a way that they will be suitable both for those desiring a general knowledge of the organic derivatives of antimony and for those who are making researches in this field.

THE PRACTICAL MEDICINE SERIES

Comprising eight Volumes on the year's progress in Medicine and Surgery. Under the general editorial charge of Charles L. Mix, A.M., M.D., Volume II.

General Surgery—Editied by Albert J. Ochmer, M.D., F.R.M.S., L.L.D., F.A.C.S., F.R.C.S., Ir., (Hon.) President, American College of Surgeons, etc., 88 plates and 108 diagrams. Pages 712. Published by the Year Book Publishers, 304, South Dearborn Street, Chicago.

This book, like other volumes in this series, will be of great aid to the profession in keeping it well-equipped with most up-to-date literature on the subject. The chapters on anæsthesia and physio-therapy are very interesting. The diagrams and illustrations are very interesting and educative. The book is written in a simple style. We commend this book to our readers.

A HAND-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY.

For the use of students and practitioners. By William A. Brend, M.A., (Camb.), M.D, B.Sc (Lond.) of the Inner Temple, Barrister-at-Law, Lecturer of Forensic Medicine, Charing Cross Hospital, etc. Fifth edition. Revised. Published by Messrs. Charles Griffin & Co., Ltd., Exeter Street, Strand, W. C. 2, London. Pages 317.

This little hand-book presents all the essential points in Medical Jurisprudence without over-burdening the text with too many illustrative cases. The book gives a complete account of the law relating to the medical practice and the various medico-legal facts which are generally met with in every day experience and also sufficient knowledge for a student appearing for the examination, in a concise and clear form.

FOOD: ITS USE AND ABUSE.

By Kate Platt, M.D., B.S. Pages 282. Published by Messrs. Faber and Gwyer., Ltd., (The Scientific Press), London. Price 3s. 6d.

This small book brings within the reach of every one, the latest expert opinions of the chief problems of diet in relation to health. The book presents a brief description of some of the common articles of food with reference to their nutrient value, digestibility and other properties. Digestion of food, and the changes which it undergoes in the process has been explained in a brief and simple manner. The chapter on vitamins contains up-to-date and interesting information, written in a simple language. The book teaches how to "eat to live."

PSYCHOLOGY FOR NURSES.

Introductory Lectures for Nurses upon Psychology and Psycho-analysis by Mary Chadwick. (Member of the College of Nursing, the British Psychological and International Psycho-analytical Societies, Pages 249, Published by Messrs. William Heinemann (Medical Books) Ltd, London Price 6s. net.

This book mainly deals with the Physiological side of Nursing, Psychological types, the unconscious mind, how it gains more direct gratification during illness; illness a regression, the transference, its curative value, dangers of convalescence and how the nurse can use her knowledge of the wishes of the unconscious mind. The aim of this book is to show the nurse the processes which are going on, all the time in her own unconscious mind as well as her colleagues and her patients and also to ease, if possible, the strain of nursing.

PSYCHO-ANALYSTS ANALYSED.

By P. McBride, M.D., F.R.C.P.E., F.R.S.E., with introduction by Sir H. Bryan Donkin, M.D., (Oxon) F.R.C.P. Pages 142. Published by Messrs. Williams Heinemann (Medical Books) Limited. Price 3s. 6d.

The author gives his reason from an unbiassed point of view why Psycho-analysis does not observe a position in scientific medicine. The first two chapters of the book deal with an unprejudiced account of the theories and practice of Psycho-analysis. The third chapter shows that the connexion between the brain and mind occupies a more dignified position than that of a mere working hypothesis. The next chapter deals with the criticism of the theories of Psycho-analysis, finally, the various views of medical men on the subject are dealt with and some general conclusions suggested.

PSYCHO-ANALYSIS AND EVERYMAN.

By D. N. Barbour, Pages 191. Published by Messrs. George Allen & Unwin Ltd., Ruskin House, 40, Museum St., W. C. I, London. Price 6s.

This book contributes, in some degree, to that fuller understanding of our own nature. The theory of Psycho-analysis and the facts that have been definitely established are stated in a simple and interesting style. The subject is treated as it affects every educated man and woman. Unnecessary and unwelcome subject matter has been reduced to a minimum. Sufficient clear examples have been included to enable the reader to apply the Psychological principles advanced, and by his own experience to estimate their validity.

AN INTRODUCTION TO SEXUAL PHYSIOLOGY.

For Biological, Medical and Agricultural students—By F. H. A. Marshall, F.R.S., Author of "The Physiology of Reproduction" with 73 Illustrations, Pages 167. Published by Messrs. Longmans, Green & Co., 39 Paternoster Row. London E. C. 4.

The subject of Sexual Physiology is one, which of late, is rapidly advancing. This volume supplies with a concise account of the more important sexual and reproductive processes in the higer animals and man. The book also includes some of the latest investigations on the subject The illustrations are excellent and educative. On the whole, it is a book which will be of great use to students and also to those who possess only a rudimentary knowledge of Zoology and Physiology.

BOOKS RECEIVED.

The following books have been received and the courtesy of the Publishers in sending them is acknowledged. Reviews will be published from time to time. [ED. ANTISEPTIC.]

Sewage. Purification and Disposal.—By G. Bertram Kershaw. Published by the Cambridge University Press, Fetter Lane, London, E. C. 4. Price 18s.

Health through Prevention and Control of Diseases—By Thomas D. Wood, M.D. and H. G. Powell, M.D. Published by the World Book Company, 2126, Prairie Ave, Chicago.

Dental Radiogram and the Science of Interpretation.—By F. E Browning, M.D. Published by Messrs. Hendrickson & Co., New York City.

The Sexual Life in its Biological Significance,—By J. Rutgers, M.D. Published by Verlag R. A Giesecke, Dresden A, 24, Price 12s.

Bainbridge and Menzie's Essentials of Physiology.—Edited and revised by C. Lovatt Evans D.S.C., M.R.C.S., L.R.C.P., F.R.S. Published by Messrs. Longman's Green & Co., 39, Paternoster Row, London E. C. 4. Price 14s.

The B. D. H. Book. A R Standards—Published by the British Drug Houses, Graham Street, City Road, London N. 1. Price 2s. 6d.

Rockfeller Foundation—International Health Board. XI Annual Report from 1st January 1924 to 31st December 1924.—Published by the Rockfeller Foundation 61, Broadway New York, U. S. A.

The Chemical Action of Ultra-Violet Rays.—By Carleton Ellis and Alfred A Wells. Published by the Chemical Catalog Co., Inc: 19, East 4th Street, New York.

Organic Derivatives of Antimony.—By Walter. G. Christiansen. Published by the Chemical Catalog Co., Inc. : 19, East 24th Street, New York.

A History of the National Tuberculosis Association.—By S. Adolphus Knopf, M.D. Published by the National Tuberculosis Association, 370, Seventh Ave, New York City.

A Descriptive Atlas of Radiographs of the Bones and Joints.—By A. P. Bertwistle M.B., C.H.B., Leeds. Published by Messrs. John Wright & Sons Ltd., Bristol. Price 17s. 6d. net.

Methods and Problems of Medical Education (Third Series).—Published by the Rockfeller Foundation, 61, Broadway, New York, U.S.A.

The Child : His Nature and His needs.—Edited by M. V. O'Shea, Professor of Education, University of Wisconsin. Published by the Children's Foundation, Valpariso, Indiana. 516 pages. Price 1 dollar and half subscription to the fund for each copy.

The Problem Child in School.—By Mary B. Sayles. Published by the Joint Committee on methods of Preventing Delinquincy, 50, East 42nd Street, New York.

A Clinical Index of Radium Therapy—By A. E. Hayward Pinch, F.R.C.S. Published by Radium Institute, Riding House Street, Portland Place, W. 1.

Examination of Children by Clinical and Laboratory Methods.—By Abraham Levinson, B.S., M.D. Published by Messrs, C. V. Mosby & Co., St. Louis. Price S. 3.50.

Commonwealth Fund Programme for the Prevention of Delinquency—Progress Report.—Published by the Joint Committee on Methods of Preventing Delinquency, 50, East 42nd Street, New York. Pages 47.

The Utilization of Music in Prisons and Mental Hospitals.—By William Van De Wall. Published by the National Bureau for the advancement of music, 45, West 45th Street, New York. Pages 67.

INDEX TO ADVERTISEMENTS.