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A Monthly Medical Journal

EDITED BY
THE HON'BLE U. RAMA RAU
AND
U. KRISHNA RAU, M.B., B.S.

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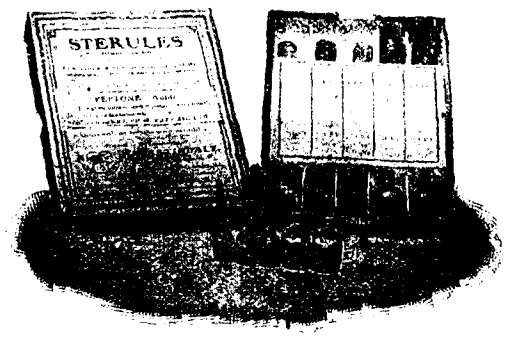

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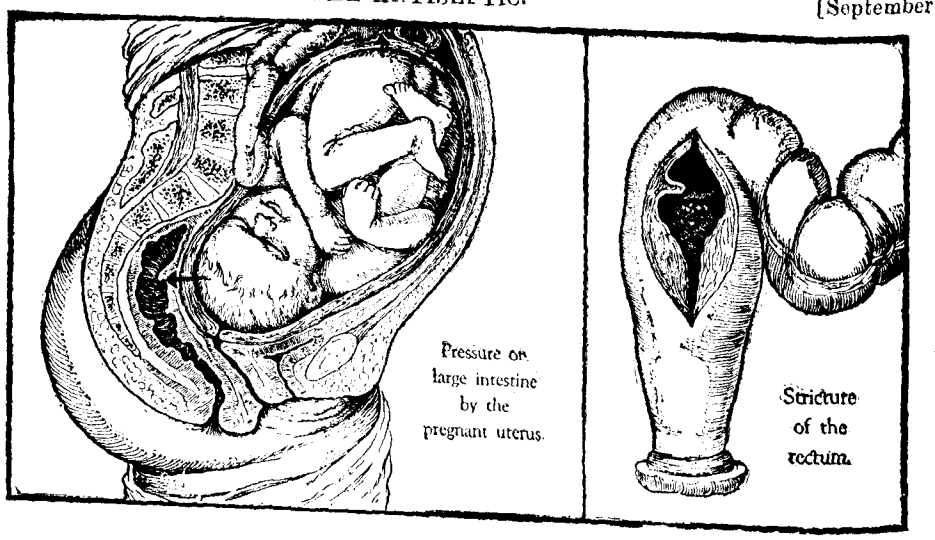

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The Antiseptic

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ORIGINAL ARTICLES.

"SEPTIC FEVER AND ITS SPECIFIC TREATMENT"*

BY

G. RAMAN PILLAI, M.B., Ch. B. (EDIN.,) BACTERIOLOGIST TO GOVERNMENT, AND MEDICAL OFFICER, NAYAR BRIGADE, TRIVANDRUM; FORMERLY HONORARY PHYSICIAN, ROYAPURAM HOSPITAL, MADRAS.

In this serious condition, the medical attendant, has, in the first place, (as in other cases), to avoid certain mistakes commonly seen, and, in the next place, to reinforce the resistance of the patient by quickening the vital powers to the maximum immune response the body is capable of, under the stimulus of the treatment adopted. Among the commoner mistakes I have observed may be mentioned: (1) the vigorous surgical manipulations at the site of the septic focus that destroy or create breaches in the chief leucocytic line of defence, and help to form artificial blind blood sinuses or incubating blood chambers in which the causative organisms rapidly multiply and can be massed in readiness for offensive operations along the now undefended tracks; (2) the administration of medicines like quinine and iron in injurious doses that upset completely the digestion of the patient at a moment when she has every need for careful nutrition; (3) the lack of early and sustained cardiac support—which means the timely exhibition of digitalin, preferably by injections, reserving the digestive tract mainly for purposes of nutrition; (4) the injection of irritating drugs, like quinine into devitalized fixed tissues in which the organisms of septicæmia can

* Specially contributed to "The Antiseptic."

easily establish themselves and give rise to secondary foci of the infection. Drug intoxication should not be super-added to the septic intoxication of the tissues. But the early and moderate digitalization of the cardiac muscle, I believe, prevents that relaxed tone of its fibres which can easily fall a prey to direct infection. These mistakes are obviated by measures such as, drainage without applying pressure (preferably by suction where that can be done, as in carbuncles), incisions by a very sharp knife in lines that cannot block up vessels or impede the free flow of discharges, aids to digestion by agreeable or pre-digested assimilable foods, and the parenteral administration of drugs as far as possible. I have seen bad cases taking on a favourable course after the stoppage of nauseating mixtures that completely deranged the digestion and did little good besides. To be starved when they have to fight disease is more than living protoplasm can stand.

A. E. Gow of St. Bartholomew's takes puerperal streptococcal sepsis as a type of this fever, and advises for a case coming early under our care, in addition to the general treatment, the subcutaneous injection of sensitized autogenous streptococcal vaccine, with 50 c.c. of anti-streptococcus serum intramuscularly, and 6 c.c. of a ten per cent. solution of Witte's Peptone intravenously administered. This procedure is for *early* cases only, let it be noted. It will now be asked: What constitutes an early case, suitable for this therapy, seing that many a patient comes to the specialist after the general treatment has failed to effect an amelioration. The history of uterine sepsis with the tender uterus discharging foul-smelling pus containing abundant streptococci (especially of the hæmolytic type), taken together with a septic temperature and associated leucocytosis, directs our attention at once to an actual or threatening septicæmia. Blood culture may or may not be productive of the definite coccal evidence of septicæmia. While it is undisputed that in every case, howsoever late, we have to do our best for the patient, there is a stage in the disease beyond which it is not safe to institute the specific line of treatment by the vaccine or the peptone. In general, it may be stated, that this treatment is contra-indicated if the patient is very low in her vitality. If the patient can assimilate light nourishment and sleeps fairly well, and daily gets several hours of respite between high temperatures or rigors, the case need not be abandoned as a late one. However, the chief

ascertainable arbiter of her fate is her cardiac reserve strength; and it is necessary for a favourable outlook that the cardiac mechanism is not handicapped by an involvement in the septic process. If the stethoscope reveals a weak or displaced apical impulse and diminishing clearness of the first heart sound, with possibly a systolic murmur and auricular fibrillation, the area of cardiac dulness should be mapped out to verify a dilated condition of the heart chambers.

These additional signs, of course, indicate a septic endocarditis and toxæmia or worse of the myocardium leading to heart failure which even digitalis can rarely help to tide over. Such a condition carries with it a grave prognosis; and it does not admit of the specific therapy of active immunity by vaccine or peptone, although the anti-serum may be tried as a consolation therapy. In the absence of the signs of cardiac weakness above mentioned, active specific treatment is well worth a trial. Any collection of pus must be evacuated in all cases before the vaccine is used, especially the large doses recommended where it is difficult to make sure of the existence of deep foci of pus, it is wiser to feel our way cautiously with minute doses of the vaccine—the result in these cases cannot be so satisfactory. A rigor or repeated rigors that imply an advance in the invasion of the septic process (either in the neighbourhood of the primary uterine focus or into distant organs like the lungs or kidneys), is not, it appears to me, a contra-indication against vaccine treatment, provided the other clinical features described are favourable. Whatever the mechanism of its production, a rigor is tantamount to a frustrated or partially successful assault on the tissues by the invading organisms. The severer the rigor or the more prolonged its duration, the keener the struggle in the battle. But, unless they are too severe and too frequent to allow of a temporary recovery of the patient, we ought to give her the benefit of the treatment under consideration. On the other hand, when the patient is losing ground, to impose a strain on her vitality by a dose of vaccine would hasten a fatal issue. Within limits, a rigor is a measure of the resistance of the organism opposed to the forces of invasion—somewhat like the intensity of a cannonade in battle that gives us a measure as to the strengths of the forces of defence and of offence. The absence of rigors in a case that previously had rigors may mean one of two things. It may mean the body is winning, when other clinical signs and symptoms also improve. It may, on the other hand,

unfortunately, mean that the body resistance is exhausted, and the invading organisms have an easy "walk-over" into the general circulation and organs as they encounter no adequate local opposition. For our present purpose, therefore, we may take a rigor as equivalent to resistance. The rigor gives us information that the body is resisting an infection. It is a signal for us to mobilize all available assistance to conquer the invader. Speaking generally, we may add, that, as rigors become fewer and less intense, the bodily resistance also becomes correspondingly enhanced. It is not here suggested that the single symptom of a rigor alone should guide us to judge of the suitability or otherwise of a case for immune therapy. Other symptoms and signs have to be taken in conjunction, undoubtedly. But, at the same time, I find it necessary and important to emphasize that a rigor in itself should not scare us away from the application of what appears to be the most effective treatment of septic fever at present available in our modern armamentarium. A dose of autogenous streptococcal vaccine may, and often is, followed by a rigor in a septic fever case. Too often, the inexperienced therapeutist abandons the vaccine as a dangerous weapon to use because it excited a rigor. Experience tells me that this is a mistaken notion. Patients who were having feeble rigors previously, but whose resistance seemed unimpaired clinically, have reacted sharply with more marked rigors after a dose of 40 or 50 millions of the vaccine. The interpretation of this rigor, is, it seems to me, that the injected dose of the vaccine reinforced or caused a reinforcement of the bodily defences to such a degree that the body could put up a stouter defensive fight against sepsis, resulting in a marked rigor. This so-called "extraneous rigor," caused by the introduction of the dead organism (in the vaccine), as it is also caused by the peptone injected into a vein, is of favourable prognostic import. It is of course dangerous to provoke a severe rigor so that exhaustion supervenes, and, may be collapse or even worse. Here we have to sound a note of caution, like other wise men, that every case should be judged on its own merits—merits that are so difficult of assessment for a young and inexperienced practitioner. For a suitable case, Gow recommends doses of sensitized streptococcal vaccine of 100 millions, 250-M. and 500-M. on successive days. After an interval of a few days, 250-M., 500-M., and 1000-M., may be given in like manner, or perhaps 100-M. daily or every other day, according to Gow. I have

noticed, that, in moderately severe cases, there is a tendency to a rapid falling off in the immunity induced by a dose of vaccine. The "positive phase," in other words, is of much shorter duration than it is in chronic infections. Therefore, in order to maintain the positive immune phase to a sufficiently long time to enable the patient to tide over the critical period, the doses of the vaccine are repeated at shorter intervals. But, even this repetition or any increase of dosage should be done only if the resulting reaction is doing good to the patient and not taking her limited stock of physical strength. At the risk of repetition, I have to stress the fact that the induction of *active* immunity by vaccines is a draft upon the patient's reserve vitality which has to be carefully economized to pull her through her illness. Draw upon it if there is sufficient in reserve; but avoid doing so if there is but little left. Most of the immunological catastrophies arise from a want of knowledge of this fact.

The anti-streptococcus serum is best used in conjunction with the vaccine. This serum is credited with but feeble anti-toxic power. All the same, given in sufficient quantity and in time to forestall the reaction due to a dose of vaccine, it appears to reduce the severity of the reactions. The immune serum, no doubt, limits the coccal activity to some extent. The serum is to be given with great caution to asthmatics, after the intra-dermal test; and no serum injection should be made ten days after the first dose, except with great precautions, because of anaphylaxis.

The same preliminary caution applies to the intravenous injection of peptone. Peptone may give rise to even more alarming symptoms (such as collapse) than the vaccine. These can be relieved by means of stimulants such as brandy, adrenalin, or pituitrin. My experience with peptone in acute disease had not been sufficiently extensive to enable me to say more about it.

Among a number of cases of puerperal septic fever I have encountered during the last few years, I shall refer to two of recent experience. A multiparous woman developed puerperal sepsis. The septic fever and the uterine condition pointed to the diagnosis. The cultures of the uterine discharge showed profuse growths of hæmolytic streptococci of great virulence in pure culture. Intra-muscular injections of quinine had been given into both the deltoids during the earlier stage of the fever, suspecting malarial infection. Gradually, the uterine

condition became almost normal, but the septic fever still continued, together with pain in both the deltoids. The urine was loaded with albumin from pus cells without tube casts, but with chains of streptococci.

Daily rigors became the rule for about a month subsequently. The blood also showed some leucocytosis. Culturing of the blood (about a week before death) was negative, as also the Widal reaction. Although the blood culture was negative, the discovery of the streptococci first in the uterus and then in the urine suggested a septic fever. The cocci must have withdrawn themselves intermittently from the circulation to their primary focus, and even been excreted in the urine.

The kidney was excreting its normal quantity of water, a tubular nephritis being thus most probably excluded. The question was: where is the secondary focus, after the uterine source of the infection had been overcome? Exploration of one deltoid area, where there was pain and tenderness revealed a quantity of pus. The abscess was opened and the pus gave me a pure culture of streptococcus hæmolyticus. The rigor continuing, the other deltoid was explored the next day, with the same result——pus with the same coccus in pure growth. These abscesses had been caused by the local irritation excited by the quinine injections in the muscles; the streptococci that traversed the circulation during a septicæmic interval settled upon the de-vitalized muscles as secondary foci. The patient developed endocarditis; and myocardial weakness supervened, together with suspicious lung bases. She passed away during the onset of a violent rigor. The case was rather a late one for active specific therapy. However, a last chance was given her, after opening one of the abscesses, by administering a dose of auto-vaccine together with intravenous strophanthin and subcutaneous anti-streptococcus serum. The rigor that came on every night appeared to be less severe on the day the vaccine and the serum were given. The second abscess was opened the succeeding day, and a dose of sensitized autogenous streptococcal vaccine and more serum given. The next two days the issue of the struggle was uncertain. Later, a persistent insomnia supervened with other unfavourable symptoms. The heart was dilating, the rigors becoming more severe still until the end which occurred at the height of a violent rigor to meet which, the myocardium was unequal.

The other case was that of a primipara who developed septic fever. Assiduous curetting had been performed to

remove any possible septic remains of retained placenta. Evening rigors with daily temperatures of 105° (and even higher) were the rule. The rigors were not severe, and the young woman had fairly good digestion and a youthful myocardium; and she was having her sleep fairly well. Hæmolytic streptococci almost in pure culture were abundant in the uterine swab. A single colony of Bacillus Pyocyaneus noticed in one of the culture tubes days after inoculation, revealed a mixed infection; and not until a mixed vaccine was used did a marked benefit follow vaccine treatment.

The cardiac strength was maintained by digitalin injections repeated so that the heart was kept moderately digitalised till the patient was out of danger. A dose of 5 million autogenous streptococcus vaccine had no effect and no reaction.

The lung bases were congested and the respiration much accelerated. The next day a dose of 50-million sensitized autogenous streptococcus vaccine was tried. This was followed in a few hours by a quiet sleep and the next day a remarkable clearance of the lung bases (suggesting metastatic pulmonary incipient infection had overcome). The sleep was of brief duration, as the toxic reaction due to the vaccine soon succeeded. The days following, larger doses of the vaccine (mixed with Pyocyaneus) were daily given, with anti-streptococcus serum sometime after the vaccine so as to neutralise the increased toxin production consequent on the reaction from the vaccine. The patient soon after made a rapid recovery, the rigors ceasing and the fever abating by gradual degrees. Interest attaches to the immunological phenomena observed and interpreted during the course of treatment. A dose of a vaccine gives us an immune response as well as a toxic reaction, both depending upon the magnitude of the dose. What we aim at is the achievement of the biggest immune response possible while reducing the toxic reaction to the minimum possible. The small dose of 5-million cocci gave us little or no reaction; but it brought us too feeble an immune response to affect the course of the disease. The large dose of 50-millions had a better immune response, but with a marked toxic reaction accompanying it. To raise the immunising response in the present case, I sensitized the autogenous streptococcal vaccine, and to reduce the toxicity of the reaction, I introduced into the patient's circulation a stream of the corresponding anti-toxin with the object of neutralising the reactive toxins as

soon as they are liberated. With a large dose of the vaccine, a proportionately large dose of the anti-toxic serum is necessary. Even though the anti-toxic power of the anti-streptococcus serum is small, the clinical improvement following its use warrants its claim as an anti-toxic agent, though a feeble one. Perhaps, a purely anti-toxic streptococcus serum, administered just when toxins begin to appear after the vaccine, would be our ideal. Nay, our ideal serum ought to have anti-bacterial property as well as the anti-toxic at the same time. The present use of convalescent sera in various diseases is perhaps an approach to this.

To recapitulate: the "don'ts" in the treatment are: (1) don't interfere with the functions of the organs of assimilation or excretion by medicinal measures that have a doubtful efficacy on the course of disease; (2) don't introduce irritants into weakened tissues in conditions where infecting organisms can invade the blood circulation and settle upon weak spots; (3) don't operate on the part so vigorously as to drive a superficial and circumscribed infection deep into the subjacent blood channels; (4) don't neglect to maintain cardiac strength when the heart shows the slightest signs of weakening. I mention these in particular because I have too often observed them in practice; and I do not wish to see my brother practitioners fall into the errors as I have seen them. In suitable cases, the sensitized streptococcus vaccine (autogenous or a polyvalent stock vaccine, or even the vaccine from the strain from a previous case that the same unlucky midwife attended) and the serum are to be used as considered.

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*CINCHONA THERAPY—A REVIEW.

[PART I.]

BY

G. RAGHUNATHA ROW, D.T.M., CALCUTTA.

History.—Our knowledge of this most valuable drug dates back to the early part of the seventeenth century. In the year 1638, the then Peruvian Viceroy's wife, "Countess Chincon" was cured of her fever (Malarial?) by the powder of the bark of a certain tree, which the natives were using as a remedy in such fevers. As the tree was then unknown in Europe, the question of a suitable name for it, had to be considered. At a later date (*i.e.*,) in the year 1640, when it was introduced into Europe, it was decided to name the tree after the Countess, and

* Specially contributed to "The Antiseptic."

accordingly the term "Cinchona" came into use. The original habitat seems to be "The Andes" in South America. When it was introduced into Europe, the Dutch, amongst all the European nations, seem to have quickly realised the tremendous importance of, and the vast possibilities of bright future for "The Cinchona Industry", and they were the pioneers in starting cinchona plantations on an extensive scale. They got the seeds from South America, and started plantations in "Java". Now, these Java plantations are world famous. The extent of these plantations and their importance can be judged from the fact, that, at present, with the possible exception of India, the world's supply of quinine comes from these plantations.

Varieties of cinchona.—There are about 13 species of cinchona of which, only 2 or 3 are well-known to us. The variety with the red bark, called "Cinchona Succirubra", grows luxuriantly in India. This is the predominating species in the Indian plantations, and this is the bark that supplies our Indian quinine, quinidine etc. This bark yields about 6 % of the total alkaloids. Prof. Dixon gives the composition of this particular bark as follows:—

> Quinine 1·5%, Cinchonine 1%, Cinchonidine 2·5%, Quinidine ?
>
> Hydro-quinine, Hydrocinchonidine ? Ash etc. ? Total= 5·8%.

Besides, the bark also contains a glucoside, an acid—"Quinic Acid", and a peculiar tannin, which, on oxidation, yields a coloring matter called "Cinchona Red".

The variety with the yellow bark, known as "Cinchona Ledgeriana" is the predominating one in the Java plantations. This also yields about 6% of the total alkaloids, but its chief importance lies in the fact that it yields about 3·5% of quinine, whereas our Succirubra yields only 1·5% of quinine. This is one of the reasons why the Java plantations, have been able to supply the whole world. But it does not mean that we should abandon the cultivation of C. Succirubra in India. If properly cultivated, and the process of extraction of the alkaloids carried out with the minimum of waste, there is no reason why India should not be satisfied with the plantations of C. Succirubra.

General composition of the bark.

(1) Alkaloids :—(A) *Crystallisable.*

(i) Cinchonine and its Isomeride C_{19} H_{22} O N_2

(ii) ,, and Cinchonidine.

(iii) Dihydrocinchonines—C_{19} H_{24} O_2N_2—Hydro-Cinchonine.

(iv) Hydrocinchonidine.

(v) Methoxycinchonines—C_{20} H_{24} O_2 N_2—Quinine and Quinidine.

(vi) Methoxydi-hydro-cinchonines :—C_{20} H_{26} O_2 N_2

(vii) Hydroquinine and Hydro quinidine.

(viii) Alkaloids of the formula—C_{19} H_{24} O_2 N_2—Quinamine and con-Quinamine.

(ix) Alkaloids of the formula—C_{16} H_{18} ON_{26} H_{20}—Paricine.

(x) Alkaloids of unknown composition—Java-nine.

(b) *Non-Crystallisable or Amorphous* :—

Generally known as "Quinoidine" :—

(i) Dicinchonine—C_{38} H_{44} O_2 N_4

(ii) Diconquinine—C_{40} H_{46} O_4 N_4

Drs. S. Ghosh & R. N. Chopra.

(2) Three Acids :—

(i) Chinic or Quinic Acid—closely allied to Benzoic Acid.

(ii) Chinovic Acid.

(iii) Chinotannic Acid.

(3) One Glucoside—Chinovin—which easily splits up into Chinovic acid and Glucose.

(4) *One colouring agent* Called "Cinchona Red" insoluble in water.

(5) *One volatile oil* which gives the bark its characteristic smell.

R. Ghosh & B. N. Ghosh.

Of all these alkaloids, only 3 or 4 are in use now, quinine, quinidine, cinchonine and cinchonidine. Of these, quinine is the most commonly used alkaloid. Next comes quinidine, then follow the other two.

The alkaloid quinine was first isolated in 1820, and used in cases of malaria. Though quinine was used in European countries, since that time, it was not used in India until 1826.

Introduction into India.— Quinine was first used in India in 1826, when the Government of Bombay purchased a small quantity for trial at the heavy price of £ 28-10-8 per lb. As the results of the trial were encouraging enough, quinine

came to be used as a remedy in malaria. It appears that the requisite quinine was purchased from the Java plantations. Considering the heavy price which had to be paid, the question of the possibility of starting "Cinchona plantations" in India, was engaging the serious attention of the India Government. Finally, the experiment was decided upon, and the cultivation of Cinchona was introduced into this country for the first time, in the year 1861. In 1874, a light-coloured power consisting of all the alkaloids of the red bark called "Quinetum or Febrifuge"-was manufactured. It was made by exhausting the powdered red bark with water acidulated with Hcl, precipitating the liquid with NaO, and drying the crude deposit. (Dymock 1891)

At present, in India, the bark of the "Succirubra" is powdered and treated with H_2 SO_4 and almost all the quinine is separated as "Sulphate". The residual alkaloids, after the separation of quinine, are sent out under the name of "Cinchona Febrifuge".

Here, it is necessary to note that, under the term "Cinchona Febrifuge" two kinds of powders are sold. One is the "Residual Alkaloids" of the bark, after the separation of almost all the quinine, and the other, simply the powdered bark containing all the alkaloids. This latter variety, obviously, is richer in its quinine content. Thus, it is seen, that cinchona febrifuge is unfortunately an unstandardised product. This gives plenty of opportunities to dishonest dealers, to sell any powder under the grand name of "Cinchona Febrifuge". From the point of view of public health, a most urgently needed legislation is to fix a standard for this useful product. But it is painful to note here, that such a piece of legislation is yet to come into force in this country.

Further, we are also having the "Cinchona Febrifuge" from the Java plantation. This contains only the residual alkaloids after the extraction of almost all the available quinine.

MacGilchrist (1915) states that the average composition of the cinchona febrifuge made at the Government Quinine Factory at Mungpoo, in India, is as follows :—

Quinine 7·40 %
Quinidine 22·83 %
Cinchonine 18·58 %
Cinchonidine 5·84 %
Uncrystallisable alkaloids and ash etc., 45·35 %

The average composition of the cinchona febrifuge derived from the "Java Barks" is said to be as follows:—

Quinine 11·5 %
Quinidine 5·0 %
Cinchonine 26·3 %
Cinchonidine 20·0 %
Uncrystallisable alkaloids and ash etc., 37·2 %

Obviously, the Java cinchona febrifuge is richer in its quinine content but poorer than the Indian variety in its other alkaloidal content.

The amount of confusion that prevalied in the minds of the honest dealers, can be judged from the fact that Messrs. Howards and Sons of London in 1922, wrote to Dr. Fletcher of the Kulalumpur Institute complaining about the unstability and uncertainty of the chemical composition of the compound.

Since then, the authorities at Java have fixed the following as legal standard for their product:—

80 % of the total alkaloids.
53 % of the crystallisable alkaloids.

The necessity for adopting a similar standard for our product cannot be over-stated. This is further necessitated by the fact that cinchona febrifuge has been found to be of equal value as quinine by Drs. Prain, Waters and Acton. Further, Major Acton (1920) has found that the India cinchona febrifuge is less toxic than quinine and superior to quinine in the treatment of benign tertian infections. A special advantage in the use of the cinchona febrifuge in benign tertian infections is its effect on relapses. It is well-known that cases of B. T. infections, are very prone to relapse after treatment with quinine alone. Major Acton estimates that no less than 80% relapse after a course of quinine alone.

RELATIVE MERITS OF THE DIFFERENT ALKALOIDS.

Cinchona Febrifuge.—As already stated, this is the most valuable remedy in cases of benign tertian infections.

Dosage.—10 grs. B. D. in mixture.

In Dr. Fletcher's series of observations, the fever did not last for more than 3 days in cases of B. T. infections after the administration of cinchona febrifuge, 10 grs. B. D. But the quartan parasites were found to be very stubborn. Parasites were found in the peripheral blood for more than 7 days. It is a matter of common knowledge, that gametocytes are relatively

more resistant to quinine and other cinchona alkaloids. Quartan gametocytes were relatively more resistant to the action of cinchona alkaloids. This can be easily verified from the fact that the average duration of quartan trophozoites in the peripheral blood was 4 days while that of the gametocytes was 8 days, and in one exceptional case, 19 days. This is further strengthened by the fact that quartan gametocytes are rather rare findings.

Further experiments with regard to the dosage by the same author revealed that 12 grs. was sufficient to control the fever, but not to kill the parasites, as was evidenced by the persistence of the trophozoites in the peripheral blood up to the 13th day. Stephens (1917) found that 54% of his series of B. T. cases relapsed within 3 weeks, after completing a course of quinine which consisted of 20 grs. or more of quinine sulphate every day for a period of not less than 4 weeks

Major Acton, as a result of extensive investigations, has proved that Indian cinchona febrifuge is less toxic than quinine. Thus, it is clearly seen that in our Indian cinchona febrifuge we have a very valuable remedy and a very essential one, as is proved by its superiority to quinine in the treatment of B. T. infections.

Disadvantages.—The only disadvantage is its intensely bitter taste, and hence, it is not at all palatable. Patients prefer quinine to cinchona febrifuge. To lessen this unpleasantness, various combinations have been tried. The following seems to be as effective as any other:—

Rx.—Cinchona febrifuge	grs.	x.
Mag. sulphas	,,	xxx.
Acid citric	,,	q.s.
Ext. Glycerrhii	,,	zi.3.
Aqua chloroformi ad	,,	ozi.
Ft. Mist.	ozi	B. D.

A further disadvantage is that, as already stated, it is not a standardised product, and so, liable to vary in its composition. This latter disadvantage can be easily remedied by legislation.

Quinoidine is the name given to the mixture of uncrystallisable alkaloids and impurities, which remain after the crystallisable alkaloids have been separated from the extract obtained from the bark.

MacGilchrist (1916) investigated the toxicity of the cinchona alkaloids by estimating the minimum lethal dose

for guineapigs. He found quinoidine the most toxic, then followed quinidine, cinchonine, quinine and cinchonidine. He also found that quinoidine was the least useful.

But his conclusions were criticised by Waters E.E. in an article in the I.M.G. 1916, September, Vol. 51, No. 9 wherein he quotes statistics from the Madras Hospital to the effect that quinoidine in doses of 4 grs. B.D. was sufficient in a series of 250 cases, to bring down the temperature and to cause the disappearance of the parasites in 72 hrs. In a second series of 105 cases, he claims to have demonstrated that quinoidine in 6 grs. doses, twice daily, was equivalent to 15 grs. of quinine hydrochloride.

His method of administration:—Starting with a simple purge, he recommends a daily dose of 12 to 24 grs. of quinoidine picrate, specially in M. T. cases. He also claims to have reduced the spleen index to 7% from 33% by a six months' course of quinoidine treatment.

The only other worker who has used quinoidine seems to be Telang R. M. whose article in the I. M. G. 1916 Vol. 51, No. 12, furnishes the following information:—

He used pills each containing 2½ grs. of quinoidine with an equal weight of a mixture of equal parts of starch and mag. carb. Dose, 4 to 8 pills daily. A slightly laxative effect was also noticed.

On account of the extreme toxicity and low efficacy, quinoidine fell into disrepute, and there seems to be no advocate for it at the present time.

Dr. Fletcher, at the Kulalumpur Institute, carried out some experiments, and he also comes to the conclusion that quinoidine is the most toxic and the least useful of all the cinchona alkaloids.

Cinchonidine.—Dr. Fletcher carried out very valuable observations at the Kulalumpur Institute. He used grs. 5 doses, twice a day, and found that cinchonidine was definitely inferior to quinine. On infusoria it has the least toxic effect.

But Acton (1920) concluded that cinchonidine and quinidine are of outstanding merit in effecting the permanent cure of B. T. cases. Further experimental work is necessary before any conclusion can be drawn as to the value of cinchonidine.

Quinidine.—Of late, this is coming into prominence. Major Acton's valuable work points to the conclusion that this is the most active of all the cinchona alkaloids. It has been found to be superior to quinine in 5 grs. doses twice daily. But the really damaging evidence against its extended use is its depressant effect on the cardiac mechanism. It lowers the excitability point of the muscle fibres of the heart. Consequently, it is very effective in auricular fibrillation. But, great caution is necessary in its use, even in cases of auricular fibrillation. It has a remarkable effect on relapses especially in cases of quartan infections and B. T. infections. We all know that quartan is the most resistant form, and consequently, the most prone to relapse.

Dr. Fletcher found that when quinidine was administered in 5 grs. doses twice daily, the quartan parasites did not persist in the peripheral blood for more than 7 days. The parasites of B. T. and M. T. disappeared in 3 days (average). Thus it is clear, that quartan is the most resistant form and against this quinidine is very valuable.

Cinchonine.—On infusoria, cinchonine and quinine are the most powerful. In large doses, this has a tendency to affect the eyes and cause diarrhœa. Dr. Fletcher's experiments show that, in doses of 12 grs. a day, cinchonine is as effective as quinine as is evidenced by the fact that the parasites disappeared on the 4th day.

But Major Acton (1920) concludes, that it is very toxic and badly-tolerated. Further work is therefore necessary to say anything definitely about it.

Quinine sulphate.—This is the most widely-used of all the crystallisable alkaloids of cinchona. Till recently, this was supposed to be the only valuable alkaloid. The work of Major Acton has shown, what amount of credit quinine is really entitled to. It is very valuable in cases of M. T. infections but in cases of B. T. and quartan infections quinidine or cinchona febrifuge seems to have better effect.

In Dr. Fletcher's series of observations the asexual parasites disappeared in 4 days (average) of the commencement of treatment, when quinine sulphate was administered in doses of 10 grs. twice a day. Various doses were tried, but 10 grs. B. D. was found to be the best. In doses of 5 grs. B. D. the parasites persisted in the perihperal blood for more than 4 days but when doses of 10 grs. B. D. were administered the parasites did not persist so long.

Now the general concensus of opinion with regard to the dosage is in favour of 10 grs. twice daily for an average healthy adult Indian, and 10 grs. twice daily for a robust European adult.

Conclusion.—As our knowledge stands at present, it is safe to infer that all the four crystallisable alkaloids, in doses of 10 grs. B. D., are of almost equal value with the exception that quinidine is better in its effects on quartan cases and relapses.

Cinchonidine in small doses, is found to be definitely inferior to quinine, but, further work with this alkaloid is necessary before anything definite could be said about it.

Quinine salts and derivatives.—Only very small quantities of quinine are absorbed in the stomach. When it reaches the duodenum, quinine is precipitated by the alkalies in the duodenum as amorphous quinine base and is absorbed as such, with the aid of the bile. Thus, it is seen, that whatever may be the salt that is given, ultimately it is converted into the alkaloid " quinine base ". Hence, we can safely infer that any salt of quinine is as good as the other.

Quinine dicarbonate is found to be useless.

Quinine tannate is much used in Italy as it is tasteless. But it has a very variable composition. Some samples of the drug contain often less than 25% of quinine-base. Dr. Fletcher concludes, as a result of his observations, that it is practically useless.

Euquinine is the most fashionable salt of quinine. It is gaining popularity as it is tasteless, but it is insoluble. It is the ethylcarbonate of quinine. As it is tasteless it can be easily administered to children and nervous adults. It contains 81% of quinine (Stitt) and its solubility is 1 in 12,000 parts of water. Hence it is tasteless, but it is very expensive and so cannot be recommended for mass treatment.

Quinine bi-hydrochloride contains 72% of the alkaloid, and is soluble in 1 part of water. This is universally used for intravenous or intramuscular injections on account of its great solubility and high alkaloidal content. Of late, the new product, " quinine and urea hydrochloride, owing to their extensive use in local anæsthesia, and their incident availability, is gradually superceding the plain bi-hydrochloride. This new product contains 60% of quinine and its solubility is 1 in 1. Hence it is extensively used. But, as it has been found to

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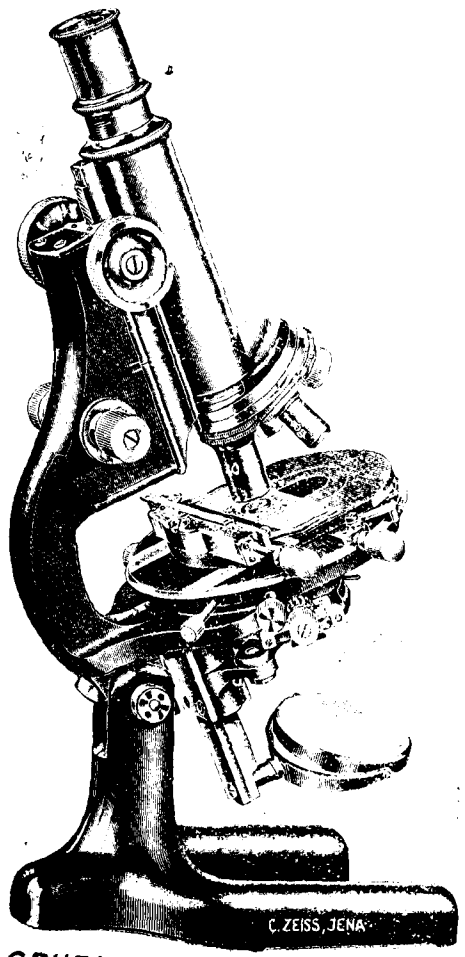

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have a slightly greater tendency to produce amblyopia than other quinine salts, it should not be used intravenously.

There are now on the market, a host of other salts of quinine such as quinine hydro-bromide, quinine lactas, quinine salicylas, etc., etc. They are used, when specially indicated in individual cases. They are not in general use.

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* DIAGNOSTIC X-RAY APPEARANCES AND THEIR VALUE IN TUBERCULOSIS OF THE LUNGS

BY

DR. K. M. HIRANANDANI, P. G., M. R. E., (UNIVERSITY OF LIVERPOOL), ETC.

X-Ray appearances in tuberculosis of the lungs consist of abnormal shadows having certain characteristic peculiarities. These changes manifest themselves according to the stage of the disease. It is true they can be detected radiographically and radiologically where the diagnosis by other means is non-confirmatory; but still, in certain latent, recipient and ambiguous cases, confirmatory diagnosis becomes difficult, and therefore the importance of clinical history of the case should not be lost sight of, and the opinion of an expert radiologist sought for.

In the first place, tuberculosis of the lungs may be approached from two points of view:—

(1) X-Ray appearances in children.

(2) X-Ray appearances in adult life.

(1) *X-Ray appearances in children.*—There are two forms of lung tuberculosis which are specially frequent in children.

(1) *Miliary Tuberculosis.*—Although not limited to children, may be described as essentially a disease of childhood. Taking a typical case and this in usually a fairly advanced case, before it reaches the X-Ray department, one finds on the X-Ray plate (which in young children is usually taken with the child lying prone, with the back of the thorax on the plate), that all over the two lung areas, the plate shows an innumerable number of small, discrete, punctate shadows. It is noticeable that the whole X-Ray field is almost uniformly covered by those opaque spots, and that, as a rule, there are fewer at the extreme apex and extreme base. It

* Specially contributed to the "Antiseptic"

this condition is shown in a child, a definite diagnosis can, with certainty, be made of acute miliary tuberculosis, and this without any reference to symptom or history. If such a case examined in any early stage, the shadowing might vary in any degree to almost any extent; if examined in a still later stage it is possible that an area, or areas of shadowing might have resulted in more or less consolidation of lung areas, and that area of the lung might show increased opacity, throughout which, the discrete shadows were still visible. Similiar X-Ray appearances are more rarely seen in *adults*, but if present, indicate the same diagnosis from the X-Ray point of view.

(2) *Root phthisis in children.*—This form of phthisis is specially common in children. It is characterised by a large number of small discrete opaque spots throughout one or both of the root areas, and often spreading out on one or either side adjacent to the root. In a majority of cases of children of large towns who live in a dust-laden atmosphere, they frequently suffer from chronic catarrh, whooping-cough and measles, and the X-Ray findings show changes due to chronic inflammatory trouble, though occasionally they might be directly tubercular. In these occasional occurrences, the X-Ray picture, in addition to increased root shadowing with irregularity to the right and left of the general midline shadow, shows small punctate shadows tending to spread along accentuated bronchial shadows upwards and outwards, towards one or both apices. The X-Ray diagnosis or suggestion of "*root phthisis*" must be limited to these rarer cases. Apart from this, the X-Ray appearances of tuberculosis in children do not differ from those seen in adults.

Pulmonary tuberculosis.—This may be considered from three points of view—*(a)* Early. *(b)* Definite. *(c)* Advanced.

Early phthisis.—This condition is of vast importance, as the radiologist is often asked to give a definite positive or negative opinion in a typical case of young adult wherein the history may be suggestive, but the clinical signs doubtful.

The first thing to do in such cases is to make a careful *screen examination* and to make note of the following (1) movement of either side of the diaphragm, (2) illumination of the lung area, specially the apices and (3) the detection of adventitious shadows. Taking these in detail, any alteration in diaphragmatic movement is observed, the basis of one side of the diaphragm or limitation or hesitation of movement of one side as compared to the suspected side. It is not a diagnostic sign, but it is an important sign. If the suspected apex is definitely observed to be less translucent than the other, it is a suggestive sign. If, in addition, definite shadows in an apex suspected can be seen, then the screen examination *becomes of great importance.* Plate then becomes necessary. Technique varies to the best methods and positions of such plates, but whilst one or more plates taken antero-posterior or postero-anterior, either lying down or standing up, a pair of stereoscopic-plates in either position is the ideal. If a plate or plates show discrete shadows in an apex corresponding to the suspected side, then, under no circumstances, is it possible to overlook this importance, whether they are found in a case in which screen findings are suggestive or not. Such shadows should be worked upon as confirmatory evidence and the case should be considered at any rate as probable tubercular infection. If screen and plate examinations are entirely X-Ray negative, then it should be reasonable to temporise.

Ordinary or definite cases of phthisis.—The X-Ray findings on the plate will vary to an enormous extent according to the area or areas of lung involved; but specially these appearances will be that on a greater or smaller area of the lung; usually in the upper part there will be more or less marked mottled shadowing always extending over a much larger area than is expected by the clinician. This mottled shadowing will be quite irregular in distribution, in some plates quite small areas, and in others quite large areas of definite opaqueness. These will be arranged in no definite manner and will vary in every case, whilst in the larger number of cases although only one apex is suspected X-Rays will show that the other apex is involved to a lesser degree.

Advanced cases.—There may be direct X-Ray evidence of cavity for motion and these cavities may show, as round or oval areas with those opaque edges, and the central portion more translucent than the rest and mottled only on account of lung shadow involved in the tubercular process lying in front or behind; in the standing position similar areas half filled opaque to X-Rays and also thin translucent area due to air. Other points of diagnostic importance are falling in of the chest on the affected side, large area of dense shadow

due to consolidation of the lung and linear shadow caused by adhesion.

The advantage of radiography as compared to clinical manifestation lies in this. The extent of the lesion is accurately defined, and therefore the prognosis may be more decidedly determined. The progress of the lesion, healed or otherwise, is clearly ascertained. The active condition is characterised by wooly or mottling appearance distinguished from chronic fibroid or healed condition. In shadow of doubt radiography helps a great deal, while much depends upon the right technique and opinion of an expert radiologist.

CASES AND COMMENTS.

THE TREATMENT OF ASCARIS LUMBRICOIDES BY OIL OF CHENOPODIUM AND OL RECIN

BY

M. G. GHAUSE, L.M.P.

The treatment of ascaris lumbricoides by ol chenopodium and ol recin published in your May 1926 issue :—I like to write about an interesting case treated by me for the very same infection.

In the early month of May, a Hindu male, aged about 35 years, was brought to my dispensary at about 2 A.M. for retention of fæces and urine.

On examination, the abdomen was found to be much distended so much so that the patient could not take easy breaths and was tossing about restlessly. The pulse was about 105 per minute and the temperature 100° F.

On enquiring about the history I was told that the patient had passed no stools since 3 days. I therefore gave one enema which brought forward various dried black foecal matter with copious urine. I was much astonished to see 2 round worms being ejected afterwards. The patient being relieved of his sufferings was sent back to his home which was about one mile off from the dispensary.

Next morning, the patient came to see me on foot. He was still complaining of some pain round his umbilicus which dispersed on all sides on being pressed. He used to get such colics before for which he took some domestic medicine and thus relieved himself.

I then gave him a dose of :

Rx :	Oil chenopodium	mx.	str.
	Recin	3i.	
	Glycerin	3ss.	

On the 3rd day, again, when he came up to me he had passed 6 loose motions containing about 13 round worms after which he was alright.

I then prescribed the following tonic for him :

Rx :	Ferri et. ammon citras	gr. v.
	Tr. nux vomica	m. v.
	Liq. arsenicalis	m. ii.
	Glycerin	3ss.
	Aqua menth pip	ad. ozi.

Mft. mist. send 6 such, one to be taken thrice daily after meals.

I had not the good luck to examine his stools under the microscope as the village mofussil dispensaries in Behar and Orissa are *not* equipped with microscopes. However, after 4 days I again gave him a dose of ol chenopodium with ol recin following a dose of calomel and sodli bicarb on the previous night. This time he passed about 4 or 5 round worms. He again continued the above-mentioned tonic for a few days afterwards and is now doing well without any relapse.

Besides this, I had the opportunity to use the above drug in many out-door cases who came up for R.W. infection in almost all of whom, I had been successful with less percentage of failure. I therefore strongly recommend it to my fellow brethren who are working in mofussil dispensaries with a very little stock of santonin for their out-door cases.

In the May 1926 issue of the Antiseptic, Dr. R.P. Govinda Pillay of Malay States, wanted to know if anybody had the occasion to treat cases of round worm infection with ol chenopodium and ol recin.

I therefore wish to publish my humble experience of short duration to support him and shall be much obliged if anybody else publishes the result of such treatment through the medium of your esteemed journal.

MYIASIS AND A SHORT NOTE ON ITS TREATMENT

By

BAHURAM GARG, L.M.P., MUZAFFARNAGAR, U. P.

Although it cannot be said definitely that the cases of myiasis we get here in this part of Northern India are due to the screw-worm, the clinical symptoms caused by and the appearance of the larvæ are quite similar to Chrysomyia Macellaria.

The insect lays a mass of eggs on the surface of wounds and especially in the ears and nasal fossæ of persons sleeping in the open air in the vicinity of which animal dung etc., lies without any particular care, especially of those having offensive discharges, which attract the fly.

The larvæ hatched from these eggs are white, about ½" in length, and formed of several segments carrying circles of minute spirally-arranged spines which give the creature a screw-like appearance. They burrow in the tissues, devouring the mucus-membrane, muscles, cartilages, periosteum and even the bones, thereby causing terrible sores, and unfrequently when they attack the ear or nasal fossæ by penetrating to the brain, death.

As every professional brother must have experienced, the patient when attacked in the nasal fossæ and in the ears is in a state of great agony. In case of nose or pallate being attacked, the whole face is swollen. Blood-stained watery discharge of very bad putrid smell trickles almost constantly from the nose. The movements of and eating up of tissues by larvæ make the patient quite restless. His condition is pitiable. The attendants of the case are but tired of him, perhaps because of his bad smell and restlessness. The doctor too wishes (I at least before now desired it) that he be relieved of the case. His compounders do not want to syringe such a case; the other cases that come to him do not like the company of such a foul-smelling patient.

I tried syringing the nose with various antiseptics but to no effect. I tried phenol and disinfecting fluids of various strengths but to no avail. When syringed with diluted turpentine oil it caused much swelling of the face although it brought out a few larvæ. I poured over these larvæ various fluids including kerosine oil but they would not be killed. Thus, one day, I lost my heart when a patient told me, "Doctor Saheb, I know you cannot cure me. But can you make me die peacefully?" These words of him touched me. Like an inspiration came the idea into my brain that I should make these larvæ senseless by chloroform. First, I tried it on a larvæ outside the body and was quite successful. I gave the patient only three or four whiffs of chloroform when a large number of them came out. I gave the case 3ii of pure chloroform and asked him to inhale it by sprinkling a little on a three-fold white khadi. To my surprise and joy, the case when it came the next day was quite free from all the larvæ, and much improved. Since then I have tried it over another three cases with marvellous success.

The treatment is cheap and effective and brings the heartfelt gratitude of the patient to the doctor. I request my professional brothers and superiors to try it.

EMETINE IN PYORRHŒA

By

V. G. KAMATH.

Is emetine indicated in the treatment of pyorrhœa alveolaris?

I have seen doctors giving emetine injections and prescribing tooth paste containing emetine for pyorrhœal patients. It is a puzzle as to why emetine is prescribed for pyorrhœa. In my humble opinion, emetine is worse than useless for this disease. My opinion is based on the following grounds:—

1. Chronic, general, suppurative periotonitis is popularly known as pyorrhœa alveolaris. It is not due to a specific organism and hence, is not a specific disease. It is like suppuration in any other part of the body due to various causes traumatic, mechanical and bacterial.

2. Entamæba gingivalis, the supposed cause of pyorrhœa, is very frequently found in pyorrhœal pus. It is also found in a few healthy mouths of children and adults. Its frequent association with pyorrhœa may simply mean that this state of mouth affords better feeding for this organism. Above all, Dobell considers it perfectly harmless and useful commensal and of value as a scavenger.

3. It would be unwise to try to kill a harmless and useful organism with a drug which has no action on this entamæba,

4. Blood supply of this periodental membrane and of the sockets of alveolas being of end-organ nature is adversely affected, to a great extent, by the depressant action of emetine on the heart and thus a favourable ground is prepared for other pathogenic organisms to play their part. In this way the condition is made worse.

AN INTERESTING CASE OF BELLADONNA POISONING AND RECOVERY

BY

R. CH. PANDA, L. M. P., MEDICAL OFFICER, PARIKUD, DT. PURI.

In the last week of April last, one day at about 6-30 p. m., I was urgently called to see a Hindu lady, J. aged 25, who was struggling for life at her house. I was really surprised to hear about that lady, as she was one of the patients of that day at my dispensary. Her servant who attended the dispensary in the morning had taken for her a dose of calomel gr. v, sodii bicarb gr. v, in one powder, and one ounce of ext. belladonna liquid for external application. The servant was twice explained by me and also by my compounder that the powder is to be taken in and the liquid for external use only, but the fellow told the reverse to the lady. The poor woman took about ½ an ounce of the extract and reserved the other half for future use. This was at about 6 P. M. Half an hour later, she developed symptoms of belladonna poisoning; so I was called in urgently.

On my visit, I found the following symptoms :—

The patient was sitting close to a wall, and neither stood nor lay down. Often tossed her head to this or that side. Her speech was indistinct. She was crying for water in the beginning, but now she was making signs to drink. Was somewhat shivering as she was in an open space. Her mouth was dry. No change of temperature ; pulse was quick and feeble. Had no vomiting or motions or did micturate. She was already given 4 ounces of salt water and a large quantity of hot water.

TREATMENT.

Her early unconsiousness could not allow the use of the stomach pump. So I gave her castor-oil 3 ounces at once and half an ounce of brandy a little later. An injection of pilocarpine nitras gr. 1/20 was given subcutaneously as an antidote to belladonna.

Diet.—Only hot tea given. She had complete rest on bed with blankets on.

At about 11 P.M. she was slightly comatose and had neither vomiting nor purging. She was made to inhale smelling salt, and some hot dry fomentation was given to her abdomen.

2nd day:—Patient regained her consciousness, passed urine, but had no motions. The abdomen was blotted and heavy. She was somewhat seedy, there was slight reeling of the head. Had no appetite.

Diet.—No solid food was given. Only hot tea was given both in the morning and in the evening. In the night, a dose of calomel and soda bicarb was given.

3rd day:—Had two big stools, abdominal condition was good. But the reeling of the head was present. She was given very light food in the morning and liquid diet in the evening.

4th day:—Everything normal.

Interesting points :—

i. Large doses of salt water and castor-oil could not produce either a vomiting or a motion. It took nearly 1½ days for the bowels to move and that too, after a dose of calomel.

ii. The poison remained in the abdomen for 1½ days but had no effect upon the life of the patient.

It is nearly three months since this occurred but no untoward effects of the poison are seen in the woman.

A CASE OF ERYSIPELAS (FACIAL)

BY

S. SRINIVASACHARY, L.M.P., REGISTERED MEDICAL PRACTITIONER, KOONNAKKUDY, RAMNAD DT.

Before I got the June '26 issue of your Antiseptic, I had a case of Erysipelas treated in my dispensary during the middle of May 1926. According to the comment made by Mr. Ramachandra Rao, M.B., & C.M., I agree that the above disease is not cured by the application of Tr. ferri perchloridi alone, but when combined with creosotum, acts better and cures like a charm.

Mr. Narayanan, Hindu, aged about 20, male, came to me on 12-5-26 with a swollen face, ear and eye-lids. The inflamed area appeared to be red, raised about ¼ inch above the skin and very shiny. The external accoustic meatus was not to be seen at all. The pinna of the ear was seen about one inch in thickness.

Patient's history.—About 3 days ago, the patient had a shave by a country barber and accidentally he had a cut near the back of the external ear and the barber applied a small portion of shaved hair over the injured area to prevent bleeding!

On the morning of 10th May 1926, when he got up from bed, he found his face swollen and he had fever and rigor the previous night. He applied some native medicine (juice of certain leaves or herbs) over the area. Unfortunately, the inflammation travelled to the cheek, face, eye-lids and front and upper portion of the scalp.

The condition of the patient on presenting himself to the dispensary was as follows:— The patient had fever 103°, pulse 100, respiration 22 per minute with the above marked swelling. He was constipated also.

Treatment.—On admission I gave him mist. alba oz. iv. stratum to move his bowels, and locally I applied lint drenched with the following lotion over the area.

Creosote m. xxx
Aqua distillata ozisse. } In the evening, as I found the temperature did not come down, I ordered the following mixture to be given at 6 P M.

Mixture.

Tr. ferri perchlor m. xxx.
Tr. nux vomica m. xv.
Mist. quinine sulph ad. oziii.
Mft. mist. ⅓ part to be given at 6 P.M. } and to keep two doses in reserve.

A sleeping dose of chloral hydras gr. xv. and ammonium bromide gr. xv. aqua ad. oz i. was given at bed time to relieve the pain.

13—5—26. Fever 101°, pulse 90 but the inflamed part was in the same condition. To-day, I applied the following lotion over the area with the lint soaked in the lotion mentioned below.

Tr. ferri perchlordi 3iv. creosotum 3i, distilled water oz. ii. Ft lotio. Internally I ordered the same mixture T.D.S. but,

I added mag. sulph. 3iv to have the bowels moved.

Diet: Conjee (sago and milk.)

14—5—26. Temp. 99°, pulse 75. Had a good appetite. The inflammation subsided a little, the scalp portion was free but the face was a little angry looking. There was oozing of fluid over the area for which I applied boric acid with a sprinkler. I repeated the same mixture internally omitting mag. sulph. Externally I applied the lotion of 13—5—26.

Diet—Pepper-water and rice.

15—5—26. Temperature *normal*. Patient's condition was normal. The inflammation was subsiding gradually. To-day I ordered the lotion every 4th hour externally and I repeated the same mixture internally thrice a day.

16—5—26. The patient became alright except discharge from his ear (right), for that was the side affected by erysipelas. I ordered cleaning the ear with H_2O_2 and the same lotion in the ear also. He had *no pain* from that day.

17—5—26. Though the inflammation and other conditions subsided, the area was scrubby and I sprinkled zinc oxide alone for two days continuously. He is now healthy.

Now, what I want to point out here is that when both Tinct. Ferri Perchloridi and creosotum are combined, they act better if not independently.

SUSPECTED SNAKE-BITE

BY
S. R. SURTI, F.R.C.S., D.P.H. (IREL.), CIVIL SURGEON, GULBARGA.

The following case is interesting in as much as the patient was admitted into the hospital in a more or less unconscious condition and no definite diagnosis could be arrived at in the absence of any history describing the mode of onset of the disease.

If my professional brethren could enlighten me with their views as to what the signs and symptoms noted down below could have been possibly due to and how far I was justified in diagnosing the case as that of "*Snake-bite*," I shall be much obliged.

The patient, a Mohamedan lad of about 14 years old, was brought into the hospital at 11 A. M. by a Fakir on the 20th June 1926, in an unconscious condition with a history of intermittent bleeding of a severe type from the right nostril since the midnight preceeding the date of admission into the hospital.

On examination, the patient was found more or less unconscious, extremely anæmic, with cold clammy skin and bleeding from the right nostril which could only be stopped with great difficulty after plugging the cavity and administering calcium chloride in fairly large doses.

The temperature was sub-normal, and the pulse thin, wiry and easily compressible, beating 130 times per minute. He vomited every now and again and could not retain even water for a minute. Respiration was also hurried and he remained extremely fidgety throughout his illness tossing about from one side to the other and shouting out every couple of minutes or so. His pupils were markedly and uniformly dilated. The abdomen presented a doughy feel which made me suspect the presence of round-worms, but that suspicion proved a false one since no worms were detected either in the fæces during the life-time of the patient or in the alimentary canal during the post-mortem examination. There was total loss of reflexes in both the lower extremities and the urine was passed involuntarily in bed.

The patient was placed on symptomatic line of treatment and with a view to eliminate the possibility of the round-worms being at the bottom of the trouble, a dose of calomel santonin gr. iii was placed on the tongue at 3 P. M. on the 21st inst. *i. e.* about 28 hours after the admission of the patient.

A couple of turpentine and soap enemas were also administered within 24 hours which relieved the bowels very freely, copious motions having passed.

Our best endeavour to keep up the circulation proved of no avail and the patient expired at last on the 21st inst at 8 P. M. *i. e.* nearly 45 hours after the onset of the symptoms viz. epistaxis and unconsciousness.

The post-mortem examination of the deceased conducted at 11 A. M. on the 22nd instant revealed nothing abnormal beyond the fact that the right ventricle of the heart was found containing pale, red, thin watery fluid containing no clots.

All points put together, death appears to me to have taken place on account of bite of a venomous serpent, although the absence of any wound showing the presence of tooth marks from a serpent-bite weakens my diagnosis considerably.

The main signs and symptoms and the post-mortem findings in favour of the above diagnosis are as follows:

(1) Discharge of thin watery blood from the nose which could be stopped with great difficulty.

(2) Cold clammy skin.

(3) Sub-normal temperature.

(4) Dilated pupils.

(5) Weak, small-volumed, low-tensioned pulse beating 130 times a minute.

(6) Unconsciousness.

(7) Extreme irritability.

(8) Frequent vomitings.

(9) Paralysis of the lower limbs.

(10) Presence of pale-red watery fluid in the right ventricle of the heart detected on post-mortem examination.

CONSTIPATION

BY

ABILAS CH. BASU, CHINSURAH.

A person is said to be constipated in all the following cases:—

(1) He may pass stool every day when the stool is hard and scybalous.

(2) He may pass stool every day but in very minute quantity.

(3) He may pass stool every other or third day.

Another test for constipation is that if a person takes a charcoal meal and if he does not pass the charcoal in 48 hours he is said to be constipated.

Constipation is of 2 types.

(1) Intestinal—where the delay is in the intestines.

(2) Dyschezia—where the delay is not in the intestines but in the sigmoid colon and rectum. It is not a delay in passing through the intestine but it is a delay in the discharge.

As a rule, food enters the cæcum 4 hours after its intake. As it gets into the ascending colon, absorption of fluid takes place and it gets drier and drier and the rate of its passage is retarded thenceforward.

A non-constipated person ought to have his rectum empty after a motion. If this is not, he is suffering from dischezia.

Intestinal constipation :—There are 2 types of intestinal constipation.

(1) Obstructive.

(2) Non-obstructive.

If a patient is suffering from obstructive constipation there is a tendency of the bowels to get over this as a result, he will have marked colicky pain and windy distention.

Non-obstructive type—The various causes may be summarised as follows:—

(1) Deficient muscular tone of the intestines.

(2) ,, nerve tone.

(3) ,, sensibility.

(4) Excessive nerve inhibition which may be (a) direct, (b) central, (c) reflex.

Causes of (1) Deficient muscular *tone.*

(a) Deficiency of tone is peculiar to certain families.

(b) It is very marked during convalescence after long illness.

(c) It often happens in chlorosis.

(d) Deficiency of tone is brought about by senile degeneration.

(e) Sedantary habits and prolonged disregard of the calls of nature.

Treatment.—(1) Give nerve tonics in convalescents.

(2) Hæmatenics in chlorosis to correct the deficiency.

(3) Stimulate the muscles by giving coarse vegetables and food that leaves a residue e. g., fruits, prunes, bran bread. These yield a large reflex which stimulate the peristalsis.

(2) Deficient nerve tone due to *(a)* want of impulse—no stimulus reaches the muscles.

Treatment.—Tone up the nerves.

(3) Deficient nerve sensibility due to over-taking of too many aperients.

Treatment.—(i) Inculcate regular habits even when there is no inclination to go to stool.

(ii) Psycho-therapy may be employed.

Causes of (4) Excessive nerve inhibitions.

(a) Reflex. May be due to peritonitis associated with (i) an appendicitis (ii) Gall bladder infection. As a rule, there is total inhibition of intestinal peristalsis.

Treatment.—Inhibition can be removed by belladonna and nux vomica in small doses.

(b) Central. A person gets shock and he gets central inhibition.

(c) Direct inhibitions. Best example is lead-poisoning. First of all, you may get bad colic but gradually there is complete inhibition.

Dyschezia :—In the normal act of defœcation three things are essential.

(1) *A sensitive defœcating centre i. e.*, your centre in the lumbar enlargement must be sensitive like consciousness.

(2) *A proper expulsive force* :—This force is brought about by the fixation of the diaphragm and contraction of the abdominal muscles with the peristalsis of the bowels.

This force pushes down the rectum and anus—but if the support on which the rectum and anus rest yeilds readily, this force is of no avail and therefore, the third essential point (3) you must have a firm fixed pelvic floor.

About the abdominal muscles, if the person is fatty with a pendulous abdomen, the abdominal muscles are infiltrated with fat and they lose their power of firm contraction.

About pelvic floor, if the pelvic floor is gone due to laceration during child-birth, constipation is the result.

Treatment of Dyschezia :

(1) Daily douche.

(2) Daily attempt.

(3) Improvement of muscular tone by Muller's exercise.

THE ROLE OF PERACRINA 303 IN THE TREATMENT OF MALARIA

BY

P. K. KURUP, L.M.P., L.C.P.S., MALABAR.

Peracrina 303 is a chemical compound of an acridine dye-stuff with a specific albuminate in pill form, each pill containing 7.7 grains of peracrina 303. Peracrina 303 does not contain quinine. It is not quite clear in what way peracrina 303 acts.

Most probably, it causes a re-action upon the organs affected by malaria and produces a temporary fresh outbreak of the formerly latent disease combined with a penetration of the protozoa into the blood-stream. Once there, the protozoa are killed by the disinfecting action of the acriflavine. Dr. Walker says " that some kind of a provocative action forcing the plasmodia from their former hiding places takes place and from the inner organs the plasmodia are thrown into the open blood circulation. The albuminates stimulate the cells vigorously in order to form immune bodies ". So peracrina 303 has a bifold therapeutic action never found in any of the anti-malarial remedies. The Haco Company of Switzerland are the sole manufacturers of peracrina 303 and my thanks are due to Messrs Volkart Bros., of Bombay who have been kind enough to supply me enough peracrina. The following are some of the cases that were treated with peracrina 303:—

Case I. X, aged 18, male, fell ill with malaria for the third time. The fever started suddenly with the usual accompaniments. Temperature kept on every day. Spleen scarcely palpable. Peracrina 303, 12 pills a day. Temperature dropped down to normal and no relapse thereafter for a month.

Case II. R, a boy aged 12. Benign tertian malaria. A week ago, he got shivering and fever with vomiting and head-ache. General condition satisfactory. Heart and lungs normal, spleen palpable. Peracrina 303, 12 pills a day. The next day violent attack came and the patient's relatives said that the medicine had aggravated the disease and that his motions and urine were coloured. But I consoled them telling that the disease that lay dormant was coming out when good medicine entered the system and so the medicine was continued and on the third day, the patient became quite alright with peracrina treatment.

Case III. D. N was laid up for a week with malaria. This was a quinine-fast case. Peracrina was tried and found to be very efficacious. The yellow hue of the urine and motions remained for 5 or 6 days after the fever.

CONCLUSIONS.

1. Within 6 hours after taking the medicine the urine and the excreta were found to be coloured and the colour remained for a few days without any untoward results.

2. Pills were given before meals and no gastric symptoms were complained of.

3. The cost of the drug prohibits its use on a large scale. I find it is costlier than quinine sulphate. Rs. 10 is the price of 100 pills of peracrina 303.

4. In one of my cases which was quinine resistant, peracrina 303 gave marvellous results.

5. I put a pill in a weak solution of acid Hcl dil. and found it dissolving more easily than in ordinary water and as such, the drug will act better if administered before meals when there is free pepsin Hcl.

HEADACHES AND HORMOTONE

BY

DR. PURANIK, ASSISTANT SURGEON,
OSMAN SHABI MILLS, LTD., NANDED.

Certain persons suffer all their lives, or for the greater part of their lives, from head-aches for which there appears to be no cause, except in the general make-up or constitution of the individual. This constitution or make-up appears to be an inherited one in all or nearly all the cases. While some of these cases are neurotic, others do not appear to be so, nor do the head-aches often appear to be the expression of an ordinary neurasthenic state.

These head-aches are not one-sided and do not exhibit the periodicity and other phenomena, which would permit them to be designated as being cases of migraine. Most of these poor sufferers go to various specialists and receive various forms of treatment with no appreciable result. It appears to me very sad that these poor sufferers, getting various local treatment which are worse than useless, should be disappointed. If a diligent and careful search for the cause is made, head-ache is no more complained of with appropriate treatment for the cause.

As this malady is very common, I have tried my best to summarise the causes after Professor Savill:

Remember that position of pain is no guide to every case;

PROFESSOR SAVILL'S CLASSIFICATION OF CAUSES:-

(a)		*Local.*	*Remarks*
(1)	*Causes*:—	Syphillitic diseases of cranium.	(1) Nocturnal exacerbations, associated tenderness.
(2)	,,	Meningeal condition.	(2) Children over three years: generally T. B. meningitis: temperature.
(3)	,,	Intra-cranial tumours.	(3) Vertigo, occasional vomiting, optic neuritis, localized tenderness over the seat.
(4)	,,	Ear diseases.	(4) Pressure over mastoid cells reveals tenderness.
(5)	,,	Diseases of frontal sinus.	(5) Dull and continuous.
(6)	,,	Supra-orbital branch of 5th nerve.	(6) Frontal shooting paroxysmal.
(7)	,,	Excessive brain work.	(7) Dull and sensation of heavy weights over vertex.
(8)	,,	Wearing heavy hats.	
(9)	,,	Pediculi Capitis.	

(b) REFLEX.

(1) Eye strain and errors of refraction.
(2) Nose, ear and teeth.
(3) Viscera.

(c) CONSTITUTIONAL.

(1) Chronic interstitial nephritis.
(2) High blood pressure.
(3) Hepatic derangement.
(4) Constipation.
(5) Chronic alcoholism.
(6) Pyrexias.
(7) Debility.
(8) Exhaustion and inanition.
(9) Hot unventilated rooms.

In spite of such adequate classification of causes, most diligent and careful search fails to reveal the cause or causes in certain cases of head-aches. The truth that such head-aches are the expression of a fundamentally faulty constitution seems to be only occasionally recognized and it is for this special reason, I have ventured writing a few words.

The treatment of such affection must depend greatly on the constitution, cause and habits of the sufferer. My procedure in treating such cases is as follows:—

(1) Ascertain the cause and treat it.

(2) Regular exercise in the open air.

(3) Avoid over-work and worries.

(4) Frequent aperients are of great service, as some patients often learn themselves, promoting as they do the elimination of toxic substances upon which the attacks may depend.

(5) Nourishing but simple food for anæmia neurotic patients combined with a modified course of rest treatment.

(6) Correct errors of refraction, if any.

(7) Correct habits of life as far as possible.

(8) Relieve the circulatory disturbances, which may cause the congestion.

(9) Promote free elimination.

(10) Relieve immediately the over-loaded vessels.

This procedure nearly exhausts the treatment, but there are still various other forms that require very keen study and quite different lines of treatment.

Among the various other forms of head-aches, neuropathic type tries our skill most. Here is a case in point.

An unmarried woman aged 23 years.

Her menses began at 13 years of age. The patient had head-aches all her life. She could not remember when she did not have them. As a rule, her headaches were not localised, but diffused over the fore-head. She could not read without glasses. She often read (with her glasses) a whole afternoon when suffering with head-aches and under these circumstances, could lose herself in a book.

The patient's monthly periods were painful, lasting for a week, appetite was good, and bowels were regular. Physical examination was practically negative.

As I took it to be a case of vaso-motor disturbance, I prescribed for her a mixture of Bromides and Gelsemium. The patient reported a little later that she was much relieved but a few days after, in spite of the same treatment, she complained of recurrence. This time I exhausted almost all the pharmacopial drugs, but to no appreciable purpose. As I had no other alternative at my disposal, I simply told her to see me after a week and she went disappointed. Meanwhile, I thought of Hormotone and prescribed her, one bottle of which cured her completely. This is a typical case, where I am still at a loss to know the reasonable cause.

I shall be thankful if any of my professional friends let me know through the medium of this periodical whether they had any chance of noting the result of Hormotone in a resistant case of head-ache as this.

PUS CYST

By

DR. HARDEO SINGH, L.M.P., GURHUNKERI, MEERUT.

A patient Khimia, 60 H. F. caste Brahmin, village Bhaina, Dt. Meerut sought admission to my dispensary on the 4th July 1926 for a sinus near the left axilla.

On careful examination I found a very hard substance touching the probe through the sinus. The patient told me that she had an abscess there for the last six months which got burst and hence, the present condition. I thought either the rib had got caries or there might be something else in the way of hard adenoma of axillary glands.

Taking that a small matter, I put the patient on the table after having given her a dose of stimulant mixture. I passed the director in and a hard stony tumour struck. I made a big incision and introduced my finger inside and found that hard stony tumour was present and it had a sac all around leaving only one way leading to sinus. I carefully dissected it and removed the whole tumour piece-meal and also the sac in the end. Then I applied some stitches and closed the whole thing.

No gland was found affected nor had it any relation with the glands and the rib underneath was quite healthy. The usual antiseptic dressing was applied and the woman was again given a dose of stimulant mixture. Two hours after, as I was not satisfied with the diagnosis, I asked the woman the whole history of the case. The patient narrated as follows :—When the woman was 14 years old, before she was married, she got a severe pain of sudden onset on the left side of the chest with an enormous inflammation of acute type. It went on increasing and a month after, it began to subside and the whole thing disappeared in a week's time. A small swelling was left in and after forty years, it again swelled up in the way of inflammation and got burst leaving a sinus.

I conclude that the pus had formed at that time and got absorbed by natural process leaving only some residual matter and there a tumour formed around the pus and to which I give the name of pus cyst.

The wound was dressed afterwards and the hole healed up in three weeks and the patient was discharged as cured.

AN ACUTE CASE OF TETANUS

By

DR. R.V. GAJENDRA GADKAR, ASST. SURGEON, OSMANABAD.

During my stay at Dichpally Leper Asylum where I was deputed by Government to observe the mode of treatment, I came across an acute case of tetanus, the history of which is as follows :—

2nd July 1926.—Babu, a Christian (convert) boy of 19 years, was brought to me at 7 P. M. with lock-jaw having deep scratches on the external surface of the right leg. He got the injury at 3 P.M. while working at the oil-engine. The incubation period was practically nil. He was unable to speak or drink any liquid. He used to get fits at the slightest noise or irritation. He could walk slightly with help—practically putting his whole weight on the person helping him. Dr. J. Shanker Rao, the Asst. M.O. of the place, requested me to take up the case and treat. So I gave Pot. bromide grs. x, chloral hydras grs. vi, sterile water 10 c.c. intravenously at 8 P.M. and a good dose of mag. sulph. and bromide mixture oz. iii. oz. i every 3rd hour. He was restless the whole night. He had four good motions.

3rd July. A warm water and soap enema was given. Liquid diet was prescribed. An intravenous injection of Pot. bromide grs. xv chloral hydras grs. ix was given at 11-30 A.M. The mixture was continued. But at 7 P.M. he had very severe fits and so 1½ c.c. of 25 % sol. of mag. sulph. was injected hypodermically and chloroform whips were given after which he slept well. Had 3 good motions and he was a little bit refreshed. The bromide

mixture was continued. Intravenous injection of 1500 units of anti-tetanus serum was given at 1 P.M. and 1 c.c. of 20 % sol. of carbolic acid hypodermically in the evening. Hence forward, the intravenous injection of potassium bromide and chlorol hydras in increasing doses in grains was given in the morning and 1 c.c. of 20 % carbolic sol. in the evening. He was cured within a week and discharged as such. Of course, the wound which was touched with pure carbolic acid had to be dressed for a day or two. So the mode of treatment of tetanus devolves into:—(1) anti-*tetanus* serum which has to be injected in larger doses of 10,000 to 20,000 units. It is very costly and so it is out of reach for the poor as well as the middle class people.

(2) Pot. bromide grs. x and chloral hydras grs. vi. given intravenously in increasing doses in grains and 1c c of 20 % Sol. of carbolic acid in the evening. But if the fits are very severe and incessant, 1 to 1½ c.c. of 25 % sol. of chemically pure mag. sulph. can be given hypodermically without any danger, or few whips of chloroform. Now-a-days I am giving a fair trial to this second method and I am getting fair success in nearly all the cases. Of course, I give one injection of anti-tetanus serum of 1500 units whenever I have it, as a precaution.

STOVARSAL

BY

DR. BALAKRISHNA N. MEHTA, M.B.B.S., BHAVANAGAR.

Stovarsal is an arsenical preparation put out in the market by May and Baker. It has been reported to give beneficial results in amœbiasis and in other diseases in which arsenic is indicated.

Recently, I had a very bad case of dysentery in which it gave a very satisfactory result.

A male patient, aged about 40 years, had had attacks of dysentery in Bombay for which he had been injected with emetine each time with good effect.

This time his illness was of a month's duration. He was passing frequent loose motions, from 30 to 40 times in 24 hours. The stools were sometimes slimy and small and contained blood while sometimes they were watery and copious.

Tenesmus and grigriny were constantly present. The patient was extremely anæmic.

Blood examination presented a picture of pernicious anæmia. Hæmic murmur was heard over the cardiac area. The liver was very much enlarged, the spleen was not palpable. The abdomen was tympanitic and full. The pulse was 104 per minute and the temperature was ranging between 99.4°F and 101°F. The tongue was pale and flabby.

Urine:- Reaction acid, no albumen, and no sugar. Some red blood corpuscles were present.

Stool examination:—No amæba, no cyst; some yeast cells were found.

Treatment:—Three emetine injections were given with little improvement. Bismuth in half drachm doses was tried with no change either in frequency or character of the stools.

Stovarsal was used, one tablet twice a day. Twenty-four hours after the exhibition of stovarsal frequency began to be less. It may be noted that bismuth was continued while stovarsal was being given.

Before the administration of stovarsal the patient was going down-hill, but its administration proved a turning point and within a week the patient was quite out of danger. Stovarsal was tried with success in two more serious cases which had refused to yield to emetine.

A RARE CASE OF "HYDROCEPHALIC MONSTER"

BY

DR. A. S. DAWSON, L.M.P., THONZE THARRAWADDY. BURMA.

Ma Nwe, a Burmese female of 25 years of age, residing in Zigon, a village near Thonze, was brought to the Civil Hospital, Thonze on 21—5—1926 at 6 A.M. in labour.

Previous history:—

Menstrual.....Normal.—She had not suffered from any serious illness prior to her pregnancy; she stated that she had been in good health up to the time of the present labour, doing her ordinary cooly work. She was married for the last 8 years. In her 18th year, she became pregnant for the first time and gave birth to a full-term baby but the child died after 7 days. About 2 years later she had a second pregnancy. The child this time also was born normally and is still alive and is in sound health. 2 years later (after the second pregnancy) she had the present conception.

The Antiseptic

SEPTEMBER, 1926.

COL. HINGSTON IN HYSTERICS.

It was not without a feeling of resentment that we had to peruse the address delivered by Col. Hingston, I.M.S., Principal of the Medical College, Madras, on the occasion of the College Day Celebration held on 27th August last. The address, we are constrained to remark, was a vile attack on and a wholesale condemnation of the present-day medical students as being a worthless, good-for-nothing lot, and a wanton insult openly offered to the Indian Professorial staff of the college, whom the Principal had characterized as unfit, antiquated and out of gear. This hysterical outburst on the part of the Colonel was apparently the outcome of intense exasperation resulting from very bad results obtained by the college, successively, at the University examinations, in recent years. The failures in the examinations, the Principal attributes among others, to the following main causes viz., (1) lack of general education in many of the students, (2) failure to select the right type of students, (3) the altered character of the University Examinations now-a-days, which have become more clinical and practical, (4) too rapid Indianization of the clinical and teaching staff of the General Hospital and College, and (5) the appointment of some professors and clinical teachers who have not adopted or are ignorant of modern methods of teaching Western Medicine.

With regard to items 1 and 2 above, we entirely disagree with the sentiments expressed by the Principal. The students, generally, are candidates who have passed the Intermediate Examination in Arts, and who do possess a good knowledge of the English language. But, if owing to communal and other considerations, the best boys are eliminated and only average intellects or even below the average are selected, we have only to thank the present communal policy of the Government for it. In times past, the Principal of the College was invested with full discretion or rather with arbitrary powers, if we may say so, in the choice of students and he always took care to see that the best brains are often selected and admitted

This was evidently responsible for the high percentage of success obtained at the Public Examinations then. The high intellectual calibre of the students coupled with their powers of intuition and thirst for knowledge more than compensated any defects in the teaching staff of the medical institutions in those days. Unfortunately, at the present time, the duty of selecting students for admission to the college has devolved on a Selection Committee with whom racial and communal interests far out-weigh considerations of merit and efficiency. It is further alleged that there is an attempt at lowering of the standard of University Examinations merely to placate these students and nothing in our opinion can be more preposterous than that statement. The Professors of the Medical College enjoy the proud privilege of being Examiners to the University as well, and if there was any lowering of the standard of the University Examinations at all, it was surely not done at the bidding of the University but on the sole initiative of these teacher-examiners themselves.

As regards the University Examinations being more clinical and practical now-a-days, they are as they should be, but the scope for practical and clinical study has become very limited. As the proportion of students admitted into the Medical College is growing year after year, the facilities for clinical work are becoming more and more inadequate and this fact the Principal himself realizes more than anybody else. It is futile to expect students to keep up to the standard of University Examinations without the necessary facilities being provided for practical instruction.

The last two defects enumerated by the Principal relate to that vexed question viz., the Indianization of the staff. The very word 'Indianization' is anathema to the European officials in India, no matter in whatever capacity they may be employed, whether as civil servants, medical officers or engineers. Till recently, the Professorial staff of the Medical College had been the sole monopoly of the I.M.S. officers. Like the members of the heaven-born service, the I.M.S. men are deemed to be all-round experts and we know of instances in which the best surgeon was posted as Professor of Medicine, the best obstetrician and gynæcologist as Professor of Medicine, the best physician as opthalmologist, an F. R. C. S. as Professor of Hygiene, Bacteriology and Biology, an M. D. in Tropical Medicine as Professor of Surgery and so on and so forth; in

other words, square men were often put in round holes with the disastrous results which we all now deplore. But all these never evoked in the past that rabid criticism which the few appointments of Indians had now done in the staff of the Medical College. We emphatically decline to accept the statement that the Indian Professors to-day are of very inferior attainments, nor are we prepared to subscribe to the *theory* put forward by Col. Hingston that teachers of this specialized profession should be 'gentlemen with *Western learning, culture and birth.*' The Indian Professor, in spite of the many handicaps and want of facilities such as study-leave etc., to go abroad and get himself posted up-to-date in the knowledge of the healing art, still holds his own and, in some cases, has even outbeaten his European colleagues and to say, therefore, that by reason of his birth, he is unfit to teach Western Medicine is to over-state the case and unduly exaggerate the superiority of the Europeans. So far as we know, medical science or for the matter of that, any science, knows no distinctions of caste, color or creed or geographical limitations. In the field of science, a J. C. Bose, a P. C. Ray, a C. V. Raman and a Ramanujam, India too can boast of—original inventors, honored and revered by Eastern and Western nations alike. In Western medicine, Indians have exhibited their talents to a degree not hitherto approached by men of Western birth and without even once visiting the Western countries, they are up-to-date in their knowledge of the science and command a wide and successful practice with a large income. Indian Medical Practitioners in Government service do no doubt recognize the need for further study in Western countries but they are denied the same privileges, facilities and opportunities as are accorded to their European brethren. Unless and until this narrow and biassed mentality on the part of the European I.M S officers who still dominate the services and whose power and influence still count with the Ministry, as openly expressed by Col. Hingston himself, is entirely rooted out and replaced by a broader outlook and more humane instincts, we think it were vain to expect any appreciable improvement in the lot of the Indian medicos in the near future.

We hope that the Indian Professors of the Medical College will not take this insult coolly lying down, and let go this unmerited if not libellous attack, on them unchallenged, nor the Ministry remain silent over this affair and leave the offence unpunished, as otherwise,

there is every likelihood of the gulf between the Indian and European elements in the College widening all the more, creating discord, disharmony and disaffection among the Professorial staff, and thereby imperilling the smooth-sailing of the institution and impairing its efficiency.

CURRENT TOPICS.

MEDICINE AND THERAPEUTICS.

Milk freed from Chloride in treatment of Œdema.—Carrayrou obtained excellent results using milk freed from chlorides in persons with enormous œdema and ascites, from a failing heart. The condition of the patients had remained precarious in spite of different heart tonics and an exclusive milk diet. As soon as the ordinary milk was replaced by milk freed from sodium chloride and potassium chloride, the out-put of urine increased, and the œdema disappeared in a few days. The daily out-put of urine, which had not surpassed 300 gm. in one patient, reached 1,250 gm. after six days of this treatment. The œdema reappeared when ordinary milk was used again. Recurring attacks of pulmonary œdema were arrested in another case when the modified milk was taken. The same benefit was manifest in nephritis and uræmia. Puglia's method of dialysing the milk allows the passage of all salts and phosphates except sodium chloride and potassium chloride. A small quantity of lactose is added in order to replace that retained by the dialyzer, and then the milk is sterilized. This chloride-free milk may prove an effectual adjuvant to tonics in heart and kidney disease. (*J. A. M. A.*)

Therapeutic uses of Peptone.—H. Pollitzer (Wien. Klin. Woch., November 5th, 1925, p. 1201) employs a sterile 5 per cent. solution in 1 c.c. capsules of Eith Merck's or Arourr's peptone; Witte's preparation has been avoided because of its high histamine content. The basis of the therapeutic action of peptone is its constriction of the valves controlling the portal and pulmonary venous systems, thus tending to produce congestion, the reverse of what occurs with the drug novasurol. The therapeutic value of peptone in bronchial asthma is explained as being due to shock effect on the sympathetic nervous system, and the pulmonary vessels and bronchial muscle fibres under its control. The action of peptone may be very pronounced; in an unselected

case of lymphatic leukæmia an injection of peptone raised the weight by 6½ lbs. in three days. It is often rapidly effective in checking some forms of severe diarrhœa, hæmoptysis, and asthma, the latter being probably its chief field of use at present. It is given by intra-muscular injection. Pyrexia should never follow; if it does, it indicates the existence of idiosyncrasy, failure of therapeutic action, or sepsis. (*B. M. J.*)

Sugar treatment of Epilepsy.—S. Wladyczko (Presse Med., November 7th 1925, p. 1475) noticed that in a district in Russia sugar shortage increased the incidence of epilepsy and aggravated the already existing cases. Investigations of the blood sugar content of epileptics produced discordant results. One of the author's epileptic patients showed just before attack, only half the normal amount of blood sugar, and so Wladyczko determined to try the administration of sugar in such cases. He now recommends glucose in doses of 50 to 100 grams by the mouth, given in water or else ordinary sugar, 200 grams in either case once daily. This may be varied by giving sugary foods, such as jam or preserved fruit. The sugar cure should be combined with other medications such as luminal or bromides, although in some cases sugar alone relieved all symptoms. The treatment is controlled by periodical examination of the blood and urine. The results were that in 18 cases the fits became less frequent and severe; in five cases the fits returned only once at intervals of four, five or six months, whereas previously, they had occurred every day in one patient, and the others, nearly once a week. (*J.A.M.A.*)

Calcium Lactate in Migraine.—C. E. Riggs (Minnesota Med. February 1926, p. 87), advocates the use of calcium lactate as a preventive in migraine. Notes of six cases are given in which attacks of migraine were aborted by administering 30 grains of calcium lactate at the first warning of the onset. It is not claimed that the drug will cure an attack when once established but, in the majority of cases, it prevents their occurrence and in some instances renders them much milder and less frequent. Riggs suggests that the tablets should always be kept in readiness and that they should be fresh since age renders them inert.

Hexylresorcinol.—H. M. N. Wynne (Minnesota Med. April 1926, p. 156) reports his experience in the use of hexylresorcinol in urinary tract infections in women. He recommends its administration by gelatin capsules containing a 25 per cent. solution in olive oil, one being taken directly after meals, three times a day for three days and gradually increasing up to four capsules, three times a day by about the eighth or the tenth day. Of the three cases of chronic B. coli infection treated by courses of from 200 to 400 capsules one showed but little improvement while the other two obtained complete relief of symptoms and sterilization of the urinary tract. Coccal infections appeared to be more susceptible to the treatment than the bacillary, and clinically the drug was found to have a distinctly antiseptic action in the urine of patients suffering from either infection. Wynne adds that it is important to commence with small doses, increasing them gradually and continuing the full doses over a considerable period of time during which alkalis should be avoided and the fluid in-take regulated to allow of sufficient concentration of the drug in the urine.

Massive dosage with Digitalis.—The value of the method introduced by Prof. Cary Eggleston of New York for the treatment of acute heart-failure associated with auricular fibrillation by the oral administration of massive dosed digitalis has not yet been fully appreciated in this country. Why in such cases should we be content to wait several days before achieving the full therapeutic effect of the drug when it can be obtained with safety in 24 hours is difficult to understand, unless it can be on account of the idea that digitalis is a dangerous drug. Most potent drugs are dangerous if improperly used but the toxic manifestations of over-dosage with digitalis are so well-recognised and the precautions necessary to avoid misadventure are so simple as to leave no reasonable cause for anxiety. To continue to give digitalis after the heart-rate has already reached a sub-normal figure or after bigeminal heart action has set in is to court disaster; but with those clear signs in addition to the gastro-intestinal danger signals as a guide, there is little cause for apprehension. Again, the rate of absorption and elimination of digitalis has been accurately determined and by allowing an interval of six hours to elapse between doses any possible danger from cumulative action can be excluded.

In the February number of the Edinburgh Medical Journal, Dr. A. Rae Gilchrist summarises his experience in 50 cases of auricular fibrillation with heart-failure treated by digitalis preceded by a control period of rest in bed for several days. The drug was given in the form of the powdered leaf, the full quantity as calculated from Eggleston's formula being divided into three doses given at four-hourly intervals. Dr. Gilchrist states that in most cases there was marked slowing of the heart six hours after the first dose and that the maximum effect was produced in less than 24 hours except in those cases where there was much portal congestion when it was frequently delayed from 48 hours. The slowing effect of the digitalis persisted in most cases for from two to ten days. Dr. Gilchrist points out that the toxic dose of digtalis is very close to the therapeutic dose but in the rheumatic cases of his series there were no severe toxic manifestations nor were there any disorders of rhythm apart from occasional extra-systoles. In four patients with normal rhythm, however, auricular fibrillation was induced by the administration of massive doses of digitals; in two of these, the normal rhythm returned spontaneously. Toxic manifestations were more prone to occur where fibrillation was associated with arterio-sclerotic type of myo-cardial disease. Bigeminal heart action was frequent in this group and in one case, digitalis provoked an attack of paroxysmal ventricular tachycardia. Dr. Gilchrist considers, that in urgent cases of heart-failure the oral administration of massive doses of digitalis is less dangerous than the intravenous administration of strophanthin. His conclusion that this method of treatment finds its most useful place in cases of auricular fibrillation occurring in the subjects of rheumatic heart disease is in accord with clinical observations elsewhere.

Treatment of Hyper-chlorhydria by Sodium.—F. F. Martinez (Arch. de med. Cir Y esp. February 13th 1926, p. 283), states that Leven was the first to describe the importance of the solar plexus in the production of numerous symptoms in dyspepsia and to treat this condition by sodium bromide which has an important action on various painful symptoms whether these are due to ordinary dyspepsia or to ulcer or cancer. Leven has shown that the drug acts not only on the gastric nerves but also on the glandular secretion. Martinez who records twenty-four personal cases of

hyper-chlorhydria, gastric, and duodenal ulcers and cicatricial pyloric stenosis has found that sodium bromide checks exaggeration of the motor and secretory functions of the stomach. Improvement is shown within the first few days of its administration by a permanent disappearance of the clinical symptoms such as pain, vomiting, dyspepsia, sensation of pharyngeal constriction, salivation and so on. Other symptoms such as headache, vertigo and constipation are also relieved at the same time. The phosphaturia diminishes the amount of urea in the urine and proportion of phosphoric acid to urea approaches the normal. There is a simultaneous fall in the quantity of uric acid and chlorides in the urine. The dose of sodium bromide in adults is 2 to 3 grams a day but it is harmless in doses of 6 to 7 grams even when continued for some time.

SURGERY.

Estimation of the date of a Fracture.—O. Andrei (La Chirurgia delgi Organi di Movimento, February 1926, p. 254), thinks that it is possible to determine the age of a fracture by radiography and cites an experience of 140 cases of fracture of different durations. He bases his estimations on the opacity, volume, and delimitation of the callus on the characters of the line of fracture and on the reconstituted bony tissue. In simple fractures of the shaft without displacement of the fragments the first change noted is a blunting of the edges and of the bony spicules which shows about the end of the second week. Callus begins to appear between the sixteenth and twentieth days; it is clearly delimited at the third or fourth month and reaches the opacity of normal bone at the eighth or tenth. In the first year, the callus shows no lamellar structure. The line of fracture disappears between the sixth and eighth months to become more opaque later in the second year. In fractures with displacement, the callus does not become delimited until later about the sixth or seventh month, and is not reduced so readily as in simple fracture without displacement. In fractures of the fingers, blunting of the edges is observed as early as the first week and callus appears as a delicate white cloud between the second and third weeks; it becomes clearly defined at the end of the fourth month and between the sixth and the seventh months it reaches the opacity of normal bone.

Extraction of Needles and Fish-hooks. O. Susani (Zentralbl. f. chir. March 27th 1926, p. 791), describes a simple and easy method of extracting needles and fish-hooks if less than 2 mm. in diameter and more than 3 mm. in length. The method is inapplicable when there is evidence of active infection or when the foreign body is close to easily injured structures such as large blood vessels or nerves. After a preliminary x-ray examination to determine the position of the foreign body, a 2 per cent. novocaine adrenaline solution is injected; a Record hypodermic needle of suitable calibre and fitted with a pear-shaped or conical metal plug which serves as a handle is thrust with aseptic precautions through a layer of sterile gauze into the skin and with the assistance of the fluorescent screen is entered in the axis of the foreign body which is engaged by the needle point. With a little manipulation, the foreign body is made to enter the lumen of the needle and the needle is then withdrawn with the foreign body in its lumen. In the case of fish-hooks and other barbed foreign bodies, a larger needle is guided to engage the barb; a small incision may then be made and the extraction completed with forceps. The author has removed needles from the knee-joint with complete success; in one case, the needle was broken off at the border of the patella and in the second case, it was broken and lying free in the joint. Both patients recovered full and painless movement of their knee-joint.

Treatment of Surgical Tuberculosis.—During the past two years G. B. Rhodes has performed a number of experiments to discover a substance that could be injected into a tuberculous abscess cavity and exert an antiseptic action on the causative bacilli. The best results have been obtained with cod-liver oil. As this substance is too acid to be tolerated by the healthy tissues it must first be boiled with an equal quantity of an aqueous suspension of magnesium hydroxide; the mixture is then centrifuged and the super-natant fluid which contains the oil is removed. In this form it may be introduced into an abscess cavity without causing irritation. The success that has followed the evacuation of tuberculous abscesses and replacement of the pus with this oil has led the author to inquire into the manner in which it acts. Campbell and Keifer found that cod-liver oil exerts a bactericidal effect on virulent strains of tubercle bacilli; Kugelmass and Mcquarrie showed that the oil possesses the property of emitting ultra-violet rays. An attempt to confirm the latter statement has cast doubt on the ultra-violet nature of the rays. An x-ray film enclosed in black paper and placed over a metal dish containing cod-liver oil when developed after forty-eight hours, was found to have a perfect representation of the oil upon it; rays must have emanated from the oil to affect the sensitized film. It seems probable, that these rays are not of one type but are composed of different wave-lengths.

BOOK REVIEWS.

AN INTRODUCTION TO SURGERY.

By Dr. Rutherford Morison, M.D., F.R.C.S., (Eng. & Edin.) M. A., D. C. L., Professor of Surgery, Durham University and Charles F. M. Saint, C. B. E., M. D., M. S., F. R. C. S., Professor of Surgery, Cape Town University, South Africa. 347 Pages. II Edition. Profusely illustrated. John Wright & Sons Ltd., Bristol.

This useful book, the author of which is no less a person than that eminent surgeon Dr. Rutherford Morison, M.D., F. R. C. S., is intended to aid the student in thinking out for himself the problems presented to him in the wards and in his text-book. This work is intended to create an interest in the subject as soon as the student grasps the general principles of surgery. In this edition, some of the old material has been re-arranged and new chapters have been added such as those on "The effects of interference with the vascular supply to the tissues" and "Nature cure". An important feature of professor Saint's special contribution is the introduction of an appendix which contains (1) a general scheme of the basis of the principles of surgery and (2) a number of type conditions dealt with to show the application of the principles enunciated. The illustrations are very instructive and interesting. The get-up of the book is very nice and neat. The subject is dealt with analytically and specially useful for surgical students in their clinical work. We commend the book to our readers.

INTRAVENOUS THERAPY: ITS APPLICATION IN THE MODERN PRACTICE OF MEDICINE.

By W. F. Dutton, M. D., with 64 illustrations Second revised and enlarged edition. 594 Pages. F. A. Davis Company, Philadelphia P. A. 1925. Price S. 6·00 net.

The intravenous therapy is now a well-established method of administering drugs. The learned author has taken much pains to explain

the reason for this form of therapeutics, the technic and the simplicity of its administration. There are not many books devoted entirely to such a detailed study of intravenous therapy as this book. Much attention is paid to the general technic of intravenous therapy with venesection, the various methods of blood transfusion, intravenous therapy in pediatrics &c. We commend the book to physicians, surgeons and medical students.

THE DENTISTS' OWN BOOK.

By C. E. Kells, D. D. S. 116 Illustrations. 550 Pages. The C. V. Mosby Company, St. Louis, U. S. A.

This work is a faithful account of the experiences gained by the author during the 46 years of his dental practice. A very useful book to dentists. It further contains a complete book-keeping and recording system and a description of the management of dental practice also.

DISEASES AND DEFORMITIES OF THE FOOT.

By J. J. Nutt, B. L., M. D., F. A. C. S. Second edition, 1925. 308 Pages. Profusely illustrated. E. B. Treat and Company, 45, East 17th Street, New York.

This book is intended for the use of physicians, who have not had the time or opportunity for the study of orthopedic surgery. The author deals with the subject thoroughly and the following are the important subjects dealt with in the book viz., Anatomy and Physiology of the foot, Weak-foot, Flat-foot, Congenital club-foot and its treatment, Pott's paraplegia, Cerebral paralysis, Infantile paralysis and other ailments peculiar to foot. The illustrations are very clear and instructive.

SMITH'S ELEMENTARY CHEMISTRY.

Revised and re-written by James Kendall, Professor of Chemistry, Columbia University. Published by G. Bell & Sons Ltd., London. 5 sh. net.

This revised and re-written elementary chemistry book stresses from the very start the fundamental principles of the science. This is a good book for beginners which insists first and foremost upon a logical presentation of the subject and a thorough grounding of fundamental theories. The essential object of the book is to train the student to acquire a scientific outlook, to think clearly and correlate and not merely to accumulate a mass of isolated facts. It also deals with the practical aspect of the subject with examples and illustrations and prepares the students for higher studies. We commend the book to beginners.

A MANUAL OF NORMAL PHYSICAL SIGNS.

By. Wyndham B. Blanton, B.A., M.A., M.D. Associate in Medicine, Medical College of Virginia. Pages 215. Published by The C.V. Mosby Company, St. Louis.

In most of the text-books on physical diagnosis, normal signs are inter-mingled with pathologic signs and hence, the student finds it very difficult to understand the description of the normal signs. This book is a collection of most of the normal findings in the healthy individual. The pathological signs of the diseases are conveniently omitted. This book will be of great use to the student especially when amplified by the class-room instructions.

THE THERAPY OF PUERPERAL FEVER.

By Dr. Robert Kochler. American edition by H. Ehrenfest, M.D., F.A.C.S. 27 illustrations. Pages 278. The C. V. Mosby Co., St., Louis, U.S.A.

In this book, the treatment of systemic infection by means of antiseptic solutions directly infused into the blood-stream, chemo-therapy and most important, of non-specific protein therapy—all very recent additions to our general therapeutic knowledge—have been introduced as well as the treatment of puerperal fever. What all is recorded in the book is the rational and impartial judgment of an experienced physician. We therefore recommend it to the Indian medical profession for careful study. Chapters on local, general and surgical therapy are very instructive. Chemo-therapy, though a new study, is worth-reading.

THE SUPREME ART OF BRINGING UP CHILDREN.

By M.R. Hopkinson. Published by Messrs. George Allan and Unwin, Ruskin House, 40, Museum St., London W.C. 1. Price 2 s. 6 d. net.

This book is the outcome of 24 years of practical experience which the author has gained in the upbringing of her own children and which she has put in print for the benefit of every mother. It deals with the spiritual, moral and mental training of children and is written in such a simple and attractive style as to arouse interest and enthusiasm among the readers. It is a book which must be in the hands of all parents, teachers and nurses who are responsible for bringing up children and moulding their character and intellect.

OPTICAL METHODS IN CONTROL AND RESEARCH LABORATORIES.

By J. N Goldsmith, Ph. D., M.Sc., F.I.C., S Judd Lewis, D.Sc., B.Sc., F.I.C., Ph. C and F. Twyman. F. Inst. P. Adam Hilger Ltd., 24, Rochester Place, London, N. W. 1.

The optical methods described in this book, are those employing spectroscopes, spectro-photo-meters, refracto-meters, and polarimeters. Though no detailed description of these instruments or their techniques is included in the book, yet in each case references are given to sources of informations. The subject is dealt with under the following sections viz, (1) Metallurgical and analytical applications (2) Absorption spectra and spectro-photo-metry (3) The refracto-meter (4) The polarimeter &c.

LANDIS COMPEND OF OBSTETRICS.

Revised and edited by C.B. Lull, M.D. Tenth Edition. 84 illustrations. 283 Pages. P. Blackiston's Son & Co., 1012 Walnut St., Philadelphia.

This work is especially adapted to the use of medical students and physicians. This work fills the demand for a small practical volume, containing the best knowledge of present-day obstetrics. Among the additions in this volume the following are the important ones:— Potter method of podalic version and of cæsarean section, the Rueben test for artificial pneumo-peritoneum, Kieland forces &c. The whole subject is dealt with in the form of questions and answers. The appendix of certain obstetric constants is given at the end of the book which is very instructive. The illustrations are good. We commend the book to junior medical students and nurses.

CLINICAL METHODS.

By Robert Hutchison, M.D., F.R.C.P., and Harry Rainy M.D., F.R.C.P. (Edin) F.R.S.E. Eighth Edition. 688 Pages. 12/6 net. Illustrated. 16 coloured plates. Cassell & Company Ltd., London. 1924.

The mere fact that the book has reached its VIII Edition, is in itself a proof to its usefulness and popularity. The aim of the work, as its title 'Clinical methods' indicates, is to describe those methods of clinical investigation in order to arrive at a correct diagnosis. To every clinical student, when he begins to work in a medical or surgical ward, the question presents itself: How shall I investigate this case? To this question, this useful work is intended to provide an answer. The first chapter on

case-taking deals with a scheme for the investigation of medical cases. The other portion of the book is an expansion of that scheme, each system being taken up separately and described in detail. A special chapter has been devoted to the methods of examining children. There are chapters on the examination of pathological fluids and on clinical bacteriology, subjects which are daily growing in importance. The book is up-to-date, and is very useful to those practitioners who may wish to know the latest methods of clinical investigation. In the edition under review, section on fractional test-meal, Van den Bergh's test, the estimation of sugar and urea in the blood and the urea concentration test have been added. No clinical student now-a-days could get on with his clinical work without this useful book. The writer of this review had the privilege of studying the first edition of the book. Since then, considerable amount of useful matter has been added to the book. We commend it both to practitioners and students.

TREATMENT OF KIDNEY DISEASES AND HIGH BLOOD PRESSURE.

By Frederick M. Allen, M. D. Part I. Pages 206. Published by the Physiatric Institute, Morristown. N. J.

This volume presents the subject of renal vascular disease in a simple and practical form. This book describes clearly the etiology, signs and symptoms, prognosis, incidence and mortality, general treatment, diet, etc. Three chapters are dedicated for a discussion on introductory laboratory procedures and urine and blood analysis. The last three chapters deal with various recipes, menus and food tables. It is a very practical book which will be of great use to patients as well as to medical practitioners.

MAN: HIS MAKING AND UN-MAKING.

By E. Boyd Barrett, M. A., Ph. D. Prof. of Psychology 1923—24, Georgetown University, Washington D. C. Pages, 269. Published by Thomas Seltzer, New York.

In this book, the subject of psychology is simplified and is dealt with in such a way as to inspire this beautiful science to all those who are in need of its knowledge. In the words of the author, the intent of this book is to help us attain "that even poise of mind, that steady adjustment of spirit which spells freedom of soul." Among the subjects dealt with in this book are, the mind out of time, the art of mental healing, the other self within us, the gamblers and criminals in general, etc. We commend this book to our readers.

DRUG REVIEW.

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Sparteine Sulph ½ gr. in 1 c.c. ...	1	0
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ORIGINAL ARTICLES.

CINCHONA THERAPY

[PART II.]

BY

DR. G. RAGUNATHA RAO, D. T. M., CALCUTTA.

PHARMACOLOGICAL ACTIONS OF CINCHONA.

Cinchona bark is an astringent febrifuge, bitter tonic and a mild antiperiodic. The last-named "Antiperiodic" action is due to the several alkaloids contained in it. The powdered bark is used; but the crude bark causes considerable irritation of the gastro-intestinal mucosa, and invariably vomiting ensues. Nevertheless, it is often prescribed with other vegetable bitters, during convalescence after acute febrile attacks. Very rarely the powdered bark is prescribed with quinine to increase the antiperiodic property of the latter. The Compound Tincture of the B. P. is used by some just to give colour to stock mixtures. To check the craving for strong drinks, the tincture is used in small doses.

QUININE SALTS' EXTERNAL ACTION.

Quinine is a general protoplasmic poison and in sufficient concentration, paralyses all forms of living matter. Quinine and other alkaloids exert a very highly toxic action on the undifferentiated protoplasms. They stop the movements of some living cells (e. g.) spermatozoa. Quinine, in dilutions of 1 in 20,000 stops the movements of paramecia, in a few minutes, and in two or three hours, the paramecia disintegrate. On bacteria, quinine and other alkaloids have a very toxic action. A peculiar property of quinine is its destructive action on cilia. Quinine is a good *Antiseptic*. In solutions of. 2% it

* Specially contributed for "The Antiseptic."

prevents the acetic and butyric acid fermentations and inhabits the growth of yeasts, and prevents decomposition in organic matter. On the ferments of the body, all the cinchona alkaloids have a depressant effect. For example—quinine reduces considerably, the activity of ptyalin, pepsin, and trypsin; and that of diastase in a less degree. The practical point that has to be noted here, is that, cinchona alkaloids should never be prescribed before meals as they depress the activity of the digestive ferments of the body. Quinine is said to inhibit the oxidising power of the protoplasm.

ON MUCOUS MEMBRANES.

Quinine acts as an "Anæsthetic" and it is used in combination with Urea (Quinine and urea Hydrocholoride) as a local anæsthetic.

MUSCLES.

Quinine is a depressant, but quinidine excels quinine, in this, quinidine depresses the excitability point of the heart muscle in particular. On the uterine muscles, quinine has little or no effect in vitro. But it is said to act as an ecbolic, and has been used for this effect in criminal abortions. In some cases, a dose of quinine has promptly emptied the uterus, and in others, even large doses have had no effect. But experimentally quinine seems to have very little effect on the natural contractions of the isolated uterus. Further, in dilutions of 1 in 150,000 and upwards, *i.e.*, the concentrations in which, ordinary therapeutic doses exist in blood, it is doubtful, if quinine has any effect on the uterus; possibly, it may have a very weak action.

In normal pregnancy, quinine, in ordinary therapeutic doses, when systematically administered, in undoubted malarial infections, seems to do no harm. But in cases of weak membranes and patulous OS, in nervous women, after repeated attacks of untreated malaria a single comparatively large dose of quinine may bring on labour. Even in such cases, if quinine be given in gradually increasing doses, and administered systematically from the moment malaria is suspected, no harm results. Repeated attacks of malaria, and the more or less continued pyrexia, seem to have more harmful effect than a dose of quinine. The rigors that precede the pyrexia, may start uterine contractions.

In every case of pyrexia in a pregnant woman, the safe rule will be, to examine the peripheral blood repeatedly for

malarial parasites, and after confirming the clinical diagnosis to begin straightaway with a small dose of quinine—say 7 or 8 grs. twice daily, in mixture and continue it up for at least two weeks or so. Of course, the peripheral blood should be examined daily for parasites. It is recommended that at least 8 examinations should be negative, before "Cure" can be pronounced. It is the single massive dose that is really harmful, and it is especially so after repreated attacks of fever (untreated). Repeated attacks of fever, cause a lowering of the natural tone of the uterine muscles. A single massive dose of quinine may then have a deleterious effect. Even in these cases, the possibility of "Idiosyncracy," of the individuals must be considered. It is not all pregnant women that react to quinine. So, it is quite possible that those cases in which quinine is said to have caused labor, or abortion may be really cases of "Idiosyncracy" to quinine. Anyhow, further accurate work is essential to say anything definitely.

ABSORPTION.

Quinine by mouth, in small doses acts as a bitter, the gustatory apparatus receives a powerful stimulus and the appetite is improved. We all know that gustatory impulses acting reflexly, are the strongest of all the stimuli, to the peptic glands. On reaching the stomach the hydrochloric acid dissolves the quinine but, there quinine has no direct action on the flow of gastric juice. Passing into the duodenum, under ordinary circumstances, quinine is absorbed rapidly, although if an excess of alkali be present in the duodenum it is precipitated by the bile acids which form with it, insoluble salts; in this way, it may occasionally remain unabsorbed and can be detected in the fæces.

BLOOD.

The chief effect is on the WBC. When one part of quinine is added to 4000 parts of human blood *(in vitro)* the amœboid movements of the leucocytes ceases very soon and they assume a spheroidal shape. Thus as diapedesis is stopped by quinine, there is inhibition of the phagocytic activity of the leucocytes. It is seen experimentally that even in concentrations of 1 in 2,000, quinine has no hæmolytic effect. But the reaction of the medium seems to play a very important, part, as—in an acid medium the hæmolytic action of quinine becomes manifest. It has been ascertained by experiments, that by giving the acid salts in fairly high

concentration, intravenously—hæmolysis can be produced. The practical point is that when acid salts are used for intravenous injections as they have to be used, they should be well-diluted.

ACTION ON MALARIAL PARASITES.

In concentrations of 1 in 10,000 quinine arrests the movements of the malarial parasites, *in vitro*, and this is what probably occurs in vivo, also. But it does not seem to attack the parasites with equal virulence in all stages of their development. Quinine is most destructive, when the schizonts are just in the act of breaking up into merozoites, and also upon the free swimming forms. But it is least effective, against the young intra-corpuscular forms. From this, it is quite evident that it should be given so that it is present in the blood, in the maximal quantity, when the merozoites are being liberated, and thus by destroying the newly-liberated merozoites, a further cycle of development is prevented. Intra-corpuscular forms of the parasites, seem to be resistant. Quinine should therefore be given just a few hours before the expected paroxysm, so that by allowing sufficient time for absorption, it may be present in the blood when the merozoites are being liberated.

HOW DOES QUININE ACT IN MALARIA?

At the outset it must be confessed that this problem is still far from being "Solved". As is natural, there are many theories and speculations. But before touching upon the several theories and suggestions, it is worthwhile to reiterate here some of the well-known facts 1. Quinine has no effect on the sexual forms of the malarial parasites. 2. Quinine has its maximum effect on the full-grown schizonts, just when they are about to rupture, on the newly liberated merozoites and on the free swimming forms. 3. On the intra-corpuscular forms it seems to have very little effect. 4. Quinine is a protoplasmic poison and it is especially toxic to the undifferentiated protoplasms and protozoa.

THEORIES AS TO THE MODE OF ACTION OF QUININE.

Morgenroth is of the opinion that quinine acts in malaria, by virtue of its fixation by the red corpuscles, where it either kills the trophozoites "in Situ" or blocks the entry into the corpuscles, of the merozoites liberated at the end of a schizogony cycle. This means that quinine renders

the R. B. C. distasteful to the parasites, and thereby kills them by starvation. But what is meant by "Fixation" is not clear.

Does it mean that quinine enters into chemical composition with the R.B.C's? If so, what is the nature of the resulting compound? And how does this prove deleterious to the parasites? Or does it mean that quinine is deposited on the surface of the R.B.Cs, thereby rendering them impermeable to the parasites? Or does the presence of quinine in the blood affect the PH of the latter? If so, to what extent? What is the optimum PH of the blood for the parasites to develop? These are points which require deep study and careful investigations with proper controls etc. Unless these points are thoroughly investigated, no satisfactory explanation can be forthcoming.

Major Knowles is of the opinion that the intra-corpuscular forms, specially those that are inside the R.B.Cs, are in safe and quinine free areas and multiply undisturbed. He admits freely that the parasites are simply applied to the surface of the R.B.Cs, and are therefore "Extracellular" for at least a part of their life cycle, say, even perhaps for as long as 20 hours or so. What he means by "Extracellular" is that the parasites are not inside the concavity of the R.B.Cs. but are simply on the surface of the R.B.Cs. The word "Extracellular" here, does not mean the usual interpretation of "outside the cell". He further opines that the whole action of quinine depends upon this fact. He says that quinine destroys those parasites that are "Extracellular" *i.e.*, those that are still on the surface of the R.B.Cs. successive doses destroying successive batches of parasites, a sort of fractional destruction being the result. This theory has the support of experimental evidence. He describes the process of destruction as follows:—"Only those that are still attached to the surface of the R. B. Cs. are affected. Those inside the R. B. Cs. are safe and free from any external disturbance and multiply unaffected. The attached parasites are swept off in thousands—swept in the circulation into the spleen meshes and there caught. They then simply go to pieces. The chromatin breaks up into fragments "Chromorrhexis" and is finally dissolved "Chromatolysis". Finally, only cytoplasm and pigments are left. The cytoplasm becomes very swollen and vacuolated and dissolved "Cytolysis." Finally, only free pigment is left and this is mopped up by the large hyaline

mono-nuclears and macrophages, wandering plasma cells and endothelial cells etc."

There is yet another theory which says that quinine is taken up "Preferentially" by the R. B. Cs.—possibly a form of "Chemotaxis" being the cause of this affinity and the R. B. Cs. which have so taken up the quinine, form a very troublesome home for the parasites. In regard to this theory one would like to know what is the nature of the preference. What are the laws governing this peculiar manifestatian ; how do the R. B. Cs. that have taken up the quinine by preference, act upon the parasites? Is it by interfering with the nutrition or respiration of the parasites, or by the actual destruction of the parasites "Cytolysis"?

PARALYSIS THEORY.

This theory is based on the assumption, that what is seen occur *in vitro* when quinine in proper concentrations, is added to a culture of the malarial parasites—occurs *in vivo* also. The newly liberated merozoites, each of them, must get into a fresh R. B. C. to continue further development. Hence, they have the power of movement and soon after their liberation from the parent schizont, each of them swims freely in the blood running in search of an R. B. C. Quinine paralyses the movements of these merozoites, *in vitro*. This theory presumes that the same thing occurs, *in vivo* also; *i. e.*, the merozoites are paralysed and so they are prevented from entering fresh, R. B. Cs., and thereby they are rendered homeless—death being the natural result.

In this connection it may be asked as to whether quinine kills all the parasites in the body up to the last survivor? It does not seem to be the case. It is quite obvious that such a thing is a physical impossibility; for, quinine in the ordinary therapeutic doses, can never be expected to permeate into every region of the body. Quinine circulates in the blood, through the main channels and does not reach the minute ramifying capillaries in the internal viscera. Consequently, it cannot reach those parasites that are hidden in such areas. These parasites may, under favourable circumstances, multiply again and give rise to relapse. But the natural tendency for every case of malaria treated judiciously with quinine seems to be to end in perfect recovery. For the quinine to destroy all the parasites, a very high concentration would have to be maintained, for a dangerously long time, which condition would be

quite incompatible with life. Therefore, it is rational to infer that what quinine does in ordinary therapeutic doses, is that it destroys a certain number of the parasites, by which time, the R. B. Cs. recover from the trance in which they were laid by the parasites and they reassert their natural power of resistance to foreign invasion, and so the parasites find a very inhospitable host. In other words, when a certain number of the parasites are destroyed by the quinine, and when the surviving number are not sufficient to bring on attacks of pyrexia—*i.e.*, when the surviving number of parasites falls below the "threshold level for fever"—then, the R. B. Cs. are given an opportunity to recoup their lost tone and they now become highly resistant to the parasites. Thus, an opportunity is created for reinforcing the ranks when the enemy is tired and weak. Meanwhile, the natural resistance of the body in general and to protozoal invasion in particular, increases and destroys the remaining number of parasites. What quinine really does is that it kills a certain number of the parasites, thereby weakening the ranks of the enemy and gives an opportunity for the natural resistance of the body to reassert itself, and vanquish the enemy.

The action of quinine is governed by three factors :—

1. Rate of multiplication of the parasites and the duration of the infection.
2. The time of sporulation, and the time when quinine reaches the maximum concentration in the peripheral blood, in relation to the time of sporulation. In other words, this is the time of maximum concentration of quinine in the peripheral blood coincident with or precedent to the time of sporulation.
3. The dose of quinine and the method of administration.

The essential points bearing on the first two factors have been briefly dealt with already. Some points regarding the dosage have also been mentioned in part I. A detailed consideration of the methods of administration with respective doses, will form the subject of the succeeding part of this paper.

DISTRIBUTION OF QUININE IN THE BODY.

When an ordinary therapeutic dose of 10 grs. twice daily, is administered the distribution seems to be approximately as follows :—

Liver.....	14·85 grs.
Kidneys.....	4·025 ,,
Suprarenal.....	·702 ,,
Corpuscles.....	·003 ,,
Serum.....	·132 ,,

This shows that large amounts are stored in the liver. The concentration of quinine in the human blood at different intervals after the administration of a therapeutic dose of quinine is given out by Majors Acton and Chopra as follows:—

Interval after administration (in hours).	Concentration of Quinine.	Amounts in Blood.	% of dose taken.
1	1 in 150,000	33	3.3
2	1 in 187,000	27	2·7
3	1 in 225,000	22	2·2
For hydro-quinine the respective figures are:—			
1	1 in 250,000	20	2·0
3	1 in 280,000	18	1·8

ACTION ON HEART.

Small doses of quinine when given orally reflexly stimulate the heart, but large doses, given intravenously, directly paralyse it as is evidenced by the gradual slowing and enfeeblement of the pulse culminating in the final stoppage of the heart in diastole. These bad effects are noticeable only when large doses are given intravenously, but not when given orally. I have personally noticed in some cases a sudden fall of blood pressure, when ordinary therapeutic doses of quinine were administered intravenously with all sorts of precautions. There is a certain amount of risk in the intravenous administration of quinine as a fall of blood pressure does occur, however trivial it might be, in every case, notwithstanding the elaborate precautionary measures that may be adopted; but the amount of fall varies within wide limits. Here also, susceptibility plays an important part. Generally, there is no possibility of a dangerous fall occurring if the injection is given *slowly* and the quinine solution well-*diluted*.

The dextro-rotatory alkaloids—quinidine and cinchonidine, invariably cause a fall of blood-pressure wheareas the lævorotatory ones—(e.g.) quinine and cinchonine are not so very depressant.

RESPIRATORY SYSTEM.

Small doses have no effect. Moderate doses quicken the respirations. Toxic doses first slow and then arrest them. The usual gaseous interchanges are checked.

DIGESTIVE SYSTEM.

Quinine has no specific effect. Even in therapeutic doses, quinine induces vomiting—in some. In large doses it is a gastro-intestinal irritant.

METABOLISM.

Quinine diminishes metabolism. There is a diminution in the total solids of the urine. Protein metabolism seems to be particularly affected as is evidenced by the diminution in the amount of N excreted in the urine. The other inorganic salts, such as sulphates, chlorides and phosphates are also diminished.

TEMPERATURE.

Quinine has very little effect on the temperature, in health, but causes a substantial reduction of temperature in malaria. Professor Dixon is of the opinion that quinine lowers the temperature by diminishing the heat production. The fall of temperature runs a course parallel to nitrogenous metabolism —as measured by the excretion of N in the urine. The fall is brought about by 1. Diminished heat production and diminished oxidation. 2. Lessened tissue metamorphosis and metabolic activities. 3. Specific action on the malarial parasites.

CENTRAL NERVOUS SYSTEM.

In large doses, quinine acts as a depressant and causes failure of the respiratory centre followed by the stoppage of the heart.

SPECIAL SENSES—EYES.

Long-continued administration may lead to amblyopia. In the therapeutic doses, sometimes, it may cause a contraction of the field of vision photophobia. The retinal vessels are first constricted and later on dilated. Quinine acts on the

ganglion cells of the retina or on the centre in the brain, thereby causing the visual disturbances.

EARS.

Ears seem to be peculiarly susceptible to the action of quinine. Ringing in the ears and temporary deafness are quite common after three or four doses. But these effects pass off generally, in ordinary individuals. In susceptible persons—especially if the administration is prolonged a permanent deafness may result. These symptoms *viz.*, ringing, humming, and hissing noices in the ears are due to congestion of the tympanum and probably also due to the action of quinine on the chorda tympani nerve.

SKIN.

Transient affections are especially frequent and are of vasomotor origin *e. g.* eczema, erythema, urticaria and even localised œdemas. In toxic doses even albuminuria and catarrh of the bladder may appear.

EXCRETION.

About half of the absorbed quinine is eliminated without much change, by the kidneys. But a small amount is believed to be converted into di hydroxy-quinine which is almost inert. Traces may also be found in the saliva, sweat, tears and milk etc. It has been estimated accurately by experiments that it takes about 48 hours for the complete elimination of a single dose.

OTHER ALKALOIDS OF CINCHONA.

Cinchonidine is the most toxic and consequently the least used.

ETHYL-HYDROCUPREINE.

In 20 to 25 grs. doses orally, renders the blood pneumococcicidal. But it contracts the field of vision and tends to cause blindness more than quinine.

AUINIDINE.

Quinidine prolongs the refractory period of the voluntary muscles. It causes an increase in the ventricular rate. It lowers the excitability point of the cardiac muscles in particular, as already stated.

Clinical Lecture

ON

THE TECHNIQUE OF MODERN SURGERY AND HOW TO ATTAIN SUCCESS

BY

SURESH CHANDRA DAS GUPTA, L.M.S., (Cal).

SENIOR SURGEON,

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LECTURE IV.

Delivered on September 10th, 1926.

AFTER OPERATION.

(Continued from page 524 of October 1926, Issue.)

AFTER-DRESSING AND REMOVAL OF DRAINAGE AND STITCHES.

Usually the bandage is applied a bit too tightly on the operation-day on account of apprehension for hæmorrhage in the first place, then keeping the parts in apposition, and so on; so, it is the duty of an assistant to inspect the part now and then, and especially after 24 hours to see if there is any swelling etc., below the bandage. If so, the bandage must be removed and applied loosely again.

The first dressing after operation depends on the nature of the case. If the case be a septic one you must open the next day, and dress the wound daily, or even every 6 hours according to the virulence of the infection. If it is an aseptic one, I do not open the wound for a week unless there is fever, pain, soaking of the dressings with blood or purulent discharge, or a drainage is left in, or the patient is very ill or collapsing without any apparent cause. On the slightest suspicion I inspect the wound myself; if there is only little accumulation, of serous exudation *i.e.*, non-inflammatory fluid, I do not interfere, but give it a chance for absorption. If drainage has been inserted, I have a look to the wound after 24 hours to 48 hours: and if it is dry and there is no sign of inflammation I order the drainage to be removed; but if otherwise I usually leave it as it is, or sometimes have it replaced by a fresh one. In opening the wound strictest antiseptic

* Specially sent for the "Antiseptic."

precaution should be taken before removal of the dressings ; the surrounding skin is sponged with spt solution of mercury bin-iodide. In case of aseptic wounds I rarely use sterilized water or antiseptic lotion in order to remove the dressings if they stick to the surface, but moisten it with spt. bin-iodide. In removing drainage I do not lay bare the whole surface, but open the particular spot. If the dressings are soiled I have them replaced by fresh ones after painting the parts thoroughly with Iodine. I always have this done before me or I do it myself, if the case is a serious one. Sometimes, slight fever is seen only on account of great tension upon stitches. Usually, there is a rise in temperature on the third day, and if it persists, the indication is that, probably, the wound has been infected. But if it runs a hectic course, for a few days, you should not wait, rather open the wound at once for the safety of your patient. If there is some tension in the wound and the skin is shining or œdematous, have some of the stitches removed at once at one or the other end or centre according to the need of the case ; and if there is any sign of accumulation of pus or excess of exudation the margins of the wound should be separated by a pair of sinus forceps to let out the fluid. In case of suppuration drain out the pus and swab the cavity with Tr. Iodine or wash out with hot perchloride lotion (1 in 1000 being a sure antiseptic), insert drainage and dress daily and treat it as a septic wound. I have learnt by experience that simple sterilized dry dressings are far better than wet antiseptic ones ; dry gauzes soak the discharge, while wet ones do not. On the other hand, fluid matter in the cavity favours growth of infective organisms. In the absence of a sterilizer, you should, if possible, make use of dry sterilized dressings in sealed bottles or tin-boxes available in market at least for aseptic and dangerously septic cases. Drainage should be put in if necessary, or counter-opening made at a suitable site to ensure thorough drainage of the cavity. Make it a point to inspect the wound yourself every other day or at the least twice a week *in turn* all the serious cases, and do not solely depend on your assistants. If you are an assistant yourself, you are duly bound to report to the surgeon as soon as you find anything unusual or alarming. *Smell* the dressings every now. and then to detect any foul smell peculiar to sepsis or gangrene, and you will learn by

practice to tell what it is due to. Separate douches must be used for separate purposes such as for saline, irrigation, enema and aseptic cases.

Sterilise the kidney-shaped or triangular trays or bowls which you have to apply against the skin at the site of operation, or during dressing for receiving the discharge even in septic cases in order to prevent further contamination of the wound. Always take care of the neighbouring joints in the after-treatment of long-standing abscesses. Early massage and passive movement can only prevent ankylosis. In hopeless cases try to keep the affected limb in a position suitable to locomotion or important functions by aid of splints.

If there is a big cavity which you cannot properly drain, or make an effective counter-opening, keep the patient in the position that favors drainage *automatically*, such as supine, prone, right or left lateral, or Fowler's position, and so on. Sometimes, simply raising the foot or head-end of the bed serves the purpose. Do not tightly plug the cavity, especially the opening, and thereby block the passage ; let the end of the plug just touch the base, and then pack lightly. Do not even apply any hard pressure against the outlet of a cavity which requires draining, rather place pads on either side, or above and below——a few inches away from the margins of the wound, so as to exert pressure on the cavity to empty its contents.

One word about bandaging again. Sometimes you should take the first ' turn ' from right to left, or from outside inwards, and sometimes *vise versa* in accordance with the position of the cavity and the outlet. Let me give you a concrete example. Suppose, an ischio-rectal abscess is opened at its most dependent part on the inner aspect of ischial tuberosity, but the cavity burrows towards the perineum. You apply a pad over there. Now, you should start from the anterior superior iliac spine ; you pass the bandage over the anterior aspect of thigh, below the inguinal furrow, by the side of perineum and rectum, and then turn it over the hip until it reaches the starting point ; next pass it round the abdomen and over the back, and then along the groin underneath the scrotum to the perineum, and so on ;——*i. e.* a fig.-of-eight bandage. You must *tighten* the bandange *at each turn* towards the outlet——just at the point where it passes (over the perineum) to the hip. Always ake into consideration the *direction of the turning* in bandaging.

The practice of throwing soiled dressings or water on the floor in wards is a nuisance ; they must be thrown into a waste-pot. A convenient form of receptacle is manufactured by Messrs Reid Bros., the cover of which opens and closes by a slight pressure of foot.

For unhealthy granulations and sloughing wounds occasional scraping, *gauze-brushing* or application of zinc chloride or copper sulphate may be necessary. In very foul cases antiseptic bath or continual irrigation by Carrel-Dakin method should be employed.

Amongst others I have used tincture of iodine (1 per cent. sol.), creolin (1 to 2 per cent.), hydrogen peroxide, chlorogen (15 to 30 minims per pint), acriflavine, brilliant green, picric acid (½ to 1 per cent.), formalin (same strength), eusol etc.; each has some advantage or disadvantage. An ideal antiseptic is yet to be found out. Instead of treating a case of sepsis with one and the same kind of antiseptic for a long time, it is advisable to change it and try another and another. For an extensive wound the application of perchloride lotion is not safe, as an undue absorption may cause toxic symptoms.

In cellulitis, even after free incisions you should apply hot antiseptic compress or bath for some days in order to relieve the congestion. One word more in this connection : you must not wet a patient or expose him to cold or draught for nothing, if you can avoid it. Have his bed surrounded by folding-screens, and try to keep him well-covered and warm.

In removing the drainage that passes through the main outlet and comes out by the counter-opening, do not pull the parts lying outside in contact with external surface *through the cavity* of the wound proper, thus infecting the same ; cut off the parts lying outside, sterilize the ends with Iodine, and then remove it. If sterilized gloves are not handy, I apply tinct. iodine freely to my fingers before introducing them into the wound ; believe me, it will not injure the skin, at least it did not do mine. No book or teacher can teach you the exact time or state of wound—when you should remove the drainage in a septic case : it is learnt only by practice. But this much I can tell you that you should not use the same length and calibre all along, but should have shorter and narrower one than the former according as the cavity is filled up in depth as well as in diameter by degrees. Remove the drainage altogether when there is no discharge. If it recurs, use again.

Ingredients for dusting into aseptic wounds should also be sterilized—including even iodoform ; it has gone out of use. I remember in our college days Sir Havelock Charles sent some specimen of iodoform from the theatre for examination, which was found to be teeming with infective germs. Since then, we started sterilization. In surgical tuberculosis only I have found injection of iodoform emulsion of some use ; in an ordinary abscess, it is not only useless, but sometimes positively harmful also. BIPP is very efficacious in sinus ; I saw two of my patients cured of urinary fistula by a few injections only——after a slight scraping. I have found BIPP very useful in the treatment of necrosed bony tissues after due scraping and antisepsis, provided there is no foul discharge from the wound. Scarlet ointment very often favours an early epidermal growth.

Before removing the stitches, paint the surface with iodine, especially over the stitched area, pull upwards one of the ends of the stitch nearer to you, push the fine point of the scissors between the knot and puncture of skin, care being taken not to prick the skin, and snip the stitch as close to the skin as possible, and then remove the suture from the opposite side by 'traction upon it directly across the line of wound' just like the drainage tube. You should not pull any portion of the suture that has been 'outside the track' through the inside of the wound and contaminate it. Paint iodine again over it and then tinct. benzoin co. and seal the wound if there is no discharge or possibility of sepsis. If there be too much tension or gaping in the wound, it is judicious not to remove all the sutures at once, but leave some at the centre, or where the tension is highest. Sometimes, strips of adhesive plaster may be applied with advantage to bring or keep together the margins of the wound ; they must be drawn to relax the skin at the line of suture and must be fixed to the skin for at least 2 to 3 in. on either side.

It a catgut is used instead of horse-hair or silk-worm gut, there is no need of removal. I have used it in laparotomy also.

COMPLICATIONS AND AFTER-EFFECTS.

Besides those already mentioned, the varieties I have met with in my own work as well as that of others are—shock, collapse, flatulence and distension of abdomen, hiccough, high or long, continued fever, bronchitis and broncho-pneumonia, parotitis, delirium or meningitis, lymphorrhœa due to

collection of serum under flaps, cholœmia, thrombosis, pulmonary embolism; abscess, cellulitis, toxæmia, septicæmia and pyemia; rupture, perforation, obstruction and peritonitis; urithritis, cystitis, retention, suppression or extravasation of urine, pyelitis, hydro or pyo-nephrosis, incontinence of urine or fæces, orchitis, epididymitis, prostatitis, stricture of urethra, rectum, or œsophagus; necrosis of bone or sloughing of skin, ankylosis or joints of limitation of freedom of movement; diarrhœa or dysentery, anorexia, exhaustion, cardiac or respirtory failure and coma.

TREATMENT OF COMPLICATIONS.

It is not possible within the scope of this short lecture to deal with the treatment of every one of the above cases. I shall only touch the most essential points amongst them: In *flatulence*—very often ordinary carminative mixture answers well; sometimes, saline aperient or calomel in small repeated doses moves the bowels; if not, insertion of a long rectal tube relieves the tension by passage of flatus. Turpentine stupe or enemata (½ oz. of oil in a pint of soap water) also acts very well; while in laparotomies you cannot possibly use fomentations, and turpentine is contra-indicated in affections of the kidneys. Hypodermic injection of pituitrin often gives relief, and should be tried in the absence of high blood-pressure. Occasional change of position, sometimes relieves the distress; Fowler's positoin too must be tried if not already done. Jellet recommends rectal injection of 2 oz. of mag. sulph, 2 oz. of glycerine with 4 ounces of warm water. In *hiccough*, Williams gives minim doses of oil of cloves or cajuput on sugar; other drugs such as, bromides, chloral, morphia are worth a trial; last of all, faradisation of the phrenic nerve or infiltration method anæsthesia with ½ to 1 p. c. novocaine after Kroh* may be tried. Persistent hiccough is a grave sign and often indicates peritoneal infection in abdominal operations. In *delirium*, patients should be kept absolutely at rest and guarded against accidents, and special arrangement of bed or attendants must be done. Stimulants should be withheld. Bromide, chloral or lastly morphin or hyosine should be tried. In *thrombosis*, the part should be raised, and protected from pressure by a cradle. Application of glycerine belladonna, fomentation and light bandage are useful. In spreading periphlebitis free incision should be made, ligature of the vessel

* Vide Indian Medical Gazette, March 1926 : Ghose.

between heart and the clot applied, and if these procedures fail, even amputation may be necessary to save the patient's life. If *embolism* is large, death may be instantaneous (Bowlby and Andrewes.) Septic embolism causes metastatic abscess. Removal of aseptic clot in time may save the life. According to Da Costa hypodermic injection of strychnin or morphia and oxygen inhalation should be tried immediately. In *Broncho-pneumonia* and septic pneumonia Fowler's position is the best. To ward off an attack I give tinct. camphor co and spt. ammon arom. in ½ dr. doses with warm water every 3 or 4 hours. Vinum Gallici and other stimulants must be started as soon as indicated, and stimulant rub or poultice also if necessary. Fresh air, oxygen and warmth are useful adjuncts. In suitable cases pneumonia phylacogen is also worth a trial.

In *septicæmia*, *pyœmia*, *toxæmia*, *erysepelas*, *tetanus* etc., diagnosis must be made at the earliest opportunity, otherwise, there is no hope. In septicæmia, blood is infected with streptococci pyogenes. Local symptoms are few, glands are seldom inflamed, wound often looks dry, urine is scanty, high fever with slight remission but no intermission occurs usually, tongue is brown and parched, appetite is lost, often thrombosis of veins results, and sometimes there is patechæ or icteric tinge of skin. Moderate temperature with a very rapid and disproportionate pulse often indicates toxic condition.

Autogenous vaccine is the best, but, if it is not available, use stock vaccine; in acute disease, dose should be very small to begin with, and the patient must be in a 'negative phase'; and repeated doses are usually necessary. "The serum treatment is designed to furnish the patient with a sufficiency of anti-bodies to neutralise the infection" (Thomson and Miles). The serum may be given subcutaneously, intravenously or into spinal canal. Anti-streptococci (polyvalent) serum is the best; this should be given from 5 to 20 c. c. every day or even every 6 hours according to the severity of the case. Weaver advises that injection of serum for curative purpose must be given into vein to obtain a rapid effect. Mixed phylacogen is also worth a trial. Dilute the toxin with saline infusion, which should be repeated every 2 or 3 hours if necessary. Iodine has been tried by various workers in septicæmia, and I have tried this drug in the absence of serum or vaccines; and in some cases it did very well. It is given intravenously from minim 5 of official tinct. iodine with 1 c. c, of sterilized distilled water to 20

minims in 10 c. c. every day or on alternate days; and then every 4th day up to 2nd week.* With Sir F. P. Connor "Iodine has become one of the routine methods of treating surgical sepsis." In all cases, prescribe large doses of alkalies by the mouth 4 hourly together with stimulants.

In *abscess*, *cellulitis* (localized streptococci infection), and *extravasation of urine* early free incisions are necessary. In sinus or fistula etc., scraping or free opening is often needful.

Cystitis, pyelitis etc., are all allied diseases occurring sometimes one after another through blocking of ureter with pus due to sepsis. Dilutent drinks, alkalies, urinary antiseptics, irrigation, lavage of pelvis, dry cupping over kidneys, warmth, rest in bed, regular diet are the only means to combat them. "If pyonephrosis developes, open the kidney and drain (nephrostomy)". Da Costa. In *obstruction*, *perforation rupture extravasation of fæcal matter*, *peritonitis* and *internal hæmorrhage*, as soon as the condition is diagnosed abdomen should be opened at once, or reopened in case of laparotomy. In obstruction, freeing adhesions, dividing bands, undoing the twists etc., may suffice sometimes; but if the seat of trouble is not detected you must perform colostomy for the time being. No feeding by mouth is allowed for 48 hours. If a loin drain is used, the patient should lie in right lateral position for first 24 hours. In *ankylosis* or limitation of movement early and regular massage, active or passive movement is most essential. This is very tedious to the surgeon and painful to the patient. In the arm—flexion is more useful than extension, while in the leg extended position is useful for locomotion; so if ankylosis is unavoidable, try to secure it in the desired position. Stiffness can be overcome by keeping the limb extended during day and flexed during night. *Operative* procedure for intra-articular ankylosis is excision; I did many nearly of every joint, and the results were very satisfactory. The method is worth a trial. Jenner Verrall recommends exercise and electric treatment for 6 weeks after operation: careful passive and active movements daily are most important for ultimate success. Stricture of rectum or urethra necessitates constant use of bougie or sound. *Bed-sores* are a complication, and in protracted cases early precautions against them must be taken, to prevent their occurrence—by avoiding pressure upon bony prominences, such as, sacrum, trochanters, elbows, heels, etc., and when

* Vide 'Antiseptic' March 1926: Chatterjee.

there is pain, redness or tendency to soreness the patient must be shifted from one position to another on the bed. Use circular pads, spring cushions, and have the parts especially back of the sacral region dry and clean, bathed and gently rubbed daily with spirit and then dusted thickly with zinc-starch or talcum powder. Water mattress or half air bed are very comfortable. Great care must be taken with regard to the bladder, rectum and paralytic cases on account of their *trophic* changes.

Lt. Col. E. J. O'Meara writes, "In India it is advisable to keep all abdominal and hernia operation in hospital for at least 21 days; otherwise, trouble with the suturing material is probable, as apparently it is absorbed with greater difficulty in this country than at home."

General Remarks.

A few words about after-care and I have finished. Arms should be fixed to the sides after operation on the axilla or sides of the chest.

After hernia operation the patient should lie on the dorsal position as a rule, and sometimes, if necessary, on the lateral side not operated. According to Binnie the patient must have rest in bed for 3 or 4 weeks; he should remain in the recumbent posture for a period 6 weeks, so as to avoid strain on the wound", and have no hard labour at least 3 months after operation. During convalescence after laparotomy the patient should lie preferably on the left side as far as possible.

Drainage from gall-bladder should not be removed before 4th day, rather it is advisable to keep it till discharges cease; gauze around the tube is usually soaked with fluid, and should be removed as soon as soiled. Cholemia is a grave danger and should be guarded by free purgation and abundance of liquid by mouth. In trachiotomy, the cannula should be cleaned by dry sterilized feathers every now and then before the lumen is blocked, and should be removed not earlier than 48 hours, but only when the secretion be small in amount and serous. In piles and fistula, Mummery changes the dressings twice a day, and the external parts washed with weak carbolic lotion. He removes the tube in 24 hours. "Its chief object is to prevent oozing, and to give warning if there is concealed hæmorrhage;" it is, therefore, unnecessary to retain it longer, as it is apt to cause discomfort after 24 hours. He allow's a night commode beside patient's bed when bowels act, as there is less straining

than when using a bed-pan.' "The patient is kept in bed until the ligatures come away, which usually occurs about the eighth day." Wound heals in 12 to 15 days, and the patient is allowed to sit up at the end of a week, but confined to bed for some time longer. In supra-pubic cystotomy if the wound is stitched and heals by first intention it is well and good; but if you have to keep a drainage, most careful precautions are necessary to keep the condition aseptic. Sir Thomson-Walker mentions 3 methods: (I) Exhaust method (a) by Catheart's apparatus, and (b) White's supra-pubic evacuator. (II) Siphonage, (III) Overflow method by Irving's apparatus. The end of the catheter should lie just above the trigone; a self-retaining catheter may be used with advantage. If not, Jacque's catheter must be fastened to the penis 'by means of a strong silk thread which is tied to the catheter, its two ends being carried back on either side of the penis, and fixed to its neck by a few strips of sticking plaster around it.' "The end of the catheter is fixed to a drainage-tube to conduct the urine into a bottle which is filled with carbolic lotion (1 in 40) to a depth of about 3 inches. The nurse should see that the catheter does not slip off from its position and should examine from time to time if there is any obstruction to the flow of urine. If it does, she must inform the house-surgeon at once. In open-wound the dressings must be changed every 4 hours or as often as soiled. Jacobson removes the catheter in 5 days, and when removed, the patient should be encouraged to pass water every 2 or 3 hours regularly until the wound heals up. Remember always, that *slight negligence in this matter often leads to sad results*. After operations on the mouth, washing or if possible gargling with an antiseptic lotion is most essential. Hydrogen peroxide (1 in 4), glycothymolin (1 in 4), listerine, (1 in 6) or acriflavine (1 in 10,000) are suitable as a wash. Rectal feeding for first 24 or 48 hours, then nasal feeding, and finally feeding by mouth by means of a feeding-cup with a rubber-tubing attached to its spout and passed into the back of throat. In prostatitis, orchitis, epididymitis etc., general treatment of inflammation such as fomentation, boric compress, leeching, glycerine belladonna and ichthyol over inflamed area are necessary. In prostatitis, Da Costa recommeees sitz-bath, rectal injection of boric lotion,

* For details see the article on 'Supra-pubic lithotomy,' Indian Medical Gazette, June 1926.

and suppositories of opium and belladonna in addition to general treatment. In epididymitis, application of guiacol in glycerine (1 in 4) and aseptic puncture with a tenotome should be done if there is fluctuation. Strapping and suspension are also beneficial. If suppuration occurs free incisions are necessary.

In empyema, encourage breathing exercise to help the expansion of the lungs. In operations on the brain according to Rawling, patients should be confined to bed for at least 3 weeks, and during convalescence care should be taken to regulate the bowels.

I am sure, I have tired your patience, still I have only touched the fringe of the problems, and there are many more items requiring to be dealt with in any comprehensive review of the subject which have not been done full justice to. I have only placed my views in a general way before you and hope they will show you the path that you should follow, or if not that, at least give you an impetus for further study and research. My last and the best advice to you is that you should treat others including your patients, as you wish they should do unto you.

"Our business in the field of fight
Is not to question, but to prove our might"

Homer.

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Under the heading "LINE OF INCISION", Lecture II, page 2 1, after the words "Your line.....of the tumour itself" insert——'If there be any cicatrix on the line of incision from previous operation, avoid the same and if not possible, make an elliptical incision around it and dissect out the cicatrical portion, and follow as usual in the same line.'

Again, under the heading of 'CONTROL ON HÆMORRHAGE AND LIGATURE", Lecture II, page 299, after the words "When the surgeon..... be quite secure.", insert——'In order to practically help the surgeon to facilitate the application of ligature, the assistant should not *wait for order*, but keep the field of operation bloodless by prompt and proper sponging. The surgeon picks up the bleeding point and hands over the forceps to his assistant; takes the ligature in his hand, or it is handed over to him; the assistant pulls up the forceps with the vessel almost vertically in superficial bleeding, or tilts it to one or other side, or push home the blades of the forceps, so as to allow space for securing the ligature in right position according to the depth of the wound. Then the surgeon applies the ligature on the vessel either from *above* by gliding over the forceps, or *below* by hooking beneath the *tip*——by the aid of index fingers, and as he draws the ends of ligature, the assistant places the forceps on the other side, i. e., tip towards the surgeon and handles away form him.'

Lastly, under the heading of "LAPAROTOMY", Lecture III, page 40[2], after the words "Always take antiseptic.....and handle the gut". insert——'The incision should be carefully made if the presence of intestines be suspected.'

[These lectures were meant for junior house-surgeons and senior medical students of Nepal.]

COMA

BY

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Coma is one of those commonest complaints which occur in the daily out-door life of a general practitioner. Coma has got a number of causes to be discussed. And without an accurate knowledge of the cause one can't give proper treatment, hence it won't be unjustifiable if some consideration is made on *Coma*.

WHAT IS COMA?

Broadly-speaking, it is a condition of complete unconsciousness with suppression of all signs of vitality (when complete) except those of organic life.

CAUSES.

The following are the causes grouped :—

1. Head injuries	...	Concussion (Bruising or stunning) compression—which may be due to
2 Cerebral hæmorrhage	...	(*a*) Some abnormal and intracranial pressure on brain;
3. „ embolism	...	(*b*) Depressed bone;
4. Thrombosis of cerebral arteries;	...	(*c*) A foreign body;
5. Alcohol	...	(*d*) Extravasation of blood within the brain;
6. Opium poisoning	...	(*e*) Acute spreading œdema;
7. Uræmia	...	(*f*) Pressure of inflammatory exudation or pus;
8. Diabetes	...	(*g*) Idiopathic hæmorrhage;

9. Acute yellow atrophy of liver	...	Tumours, gummata or abscesses
10. Sun stroke	...	E.g. of the middle origin.
11. Other organic and functional lesions of the cerebrum—		These may be
	...	(a) Post-epileptic stupor etc ;
	...	(b) Cerebral tumours and abscess ;
	...	(c) Disseminated sclerosis ;
	...	(d) General paralysis of insane ;
	...	(e) Some acute and sub-acute cerebral lesions e.g. tuberculosis and simple meningitis and septic sinus thrombosis.
12. Certain rare conditions:—	...	(a) Addison's and Raynand's diseases, (b) malignant malaria (c) excessive muscular exertion (d) fat embolism ; (e) certain poisons—botulism, from infected sausages and anaphylaxis.

N. B.—The causes in children :—The most important are the following in order of frequency :—Injury, tuberculous meningitis (most common), post-basal meningitis, suppurative meningitis, post-epileptic stupor, cerebral tumour, syphilitic pachymeningitis, sinus thrombosis and hæmorrhage. Cerebral hæmorrhage occurs chiefly in connection with specific fevers.

CASE TAKING.

When called to see a comatose patient, it is of primary importance for the general practitioner to give his whole and sole attention to the following points when he is going to examine his patient keeping in mind the commonest causes of coma which occur in every-day practice, the commonest causes of coma being head injuries, alcohol, cerebral apoplexy, opium poisonings, uræmia and diabetes. The examination should be made in the following manner ;—

(1) *Surroundings of the patient* :—Note the position of the body, the nature of the ground, any vomit or blood near by.

(2) *Depth of Coma* :—May be ascertained by trying to rouse the patient and asking questions.

(3) *Examination of head and other parts* :—Carefully examine if any head injury is present e.g. wounds, fractures etc. It should also be kept in mind that injury can also occur after coma has developed.

(4) *Odour of Breath* :—Alcoholic odour from the mouth is indicative of patient suffering from alcoholic coma, but it is not always true as it is quite possible that the people concerned might have given him a glass of spirits to revive him after he developed coma. Sweet odour indicates diabetes. In such cases history from his relatives will reveal the fact.

(5) *Condition of pupils and conjunctival reflex* :—The pupils are nearly always dilated or unequal in all forms of coma except in opium poisoning in which they are much contracted and equal. They are also contracted when coma is due to hæmorrhage into the pons. Conjunctival reflex is lost in apoplexy or fracture with compression while it is present in all other forms.

(6) *Note the character of the pulse* and *heart* and examine *arteries*. High blood-pressure is always met with in apoplexy, uræmia or lead poisoning ; the pulse is much slow in opium poisoning and tumours while a pre-systolic murmur suggests cerebral embolism.

(7) *Respirations* :—The character should be noted. These are stertorous (snoring) in profound coma, and very slow in opium poisoning. Cheyne-Stokes respirations occur in severe cases of uræmia and apoplexy.

(8) *Temperature* should be taken. It is very low in uræmia and opium poisoning ; a little lowered in apoplexy and still more in drink. If it runs up after an attack of apoplexy the prognosis is very serious then.

(9) *Tongue* :—It is often bitten in an epileptic fit.

(10) *Paralysis*:—This is sometimes a very difficult task to find out. Usually in apoplexy, the paralysed arm and leg of one side of the body are more rigid or more flaccid than the other side. This can be seen by raising the limbs and allowing them to fall. Generally one side is weaker than the other in nearly all cases of gross cerebral lesions (tumour, abscess and meningitis etc).

(11) *Urine* should be examined if possible. It should be drawn by catheter if required to do so. If albumen and sugar are absent it indicates that coma did not occur due to renal diseases or diabetes, but it should be kept in mind that a small quantity of albumen is also present in urine in patients suffering from apoplexy. Morphia is detected in opium poisoning.

(12) *Age*:—Middle-aged men generally suffer from coma due to cerebral hæmorrhage etc., while in children, the meningitis, cerebral tumour, sinus thrombosis and post-epileptic coma are common.

(13) *History*:—Ask the attendants of the patient whether coma developed suddenly in apparent health or the patient was suffering from some other disease before. Also inquire if the patient had any convulsions before coma set in. They usually precede coma in hepatic and uræmic poisonings, general paralysis of insane and tumours near the motor area of the brain.

SYMPTOMS OF COMA.

The patient is found lying on his back absolutely unconscious. No shouting or shaking can rouse him, all the signs of movement and sensation are absent. If you raise his limbs they will fall down helplessly. The eyes are closed and the conjunctival reflexes are present or absent. Sometimes, the patient is found with his eyes partially closed and then the condition is termed as *Coma Vigil*. His breathing is slow or stertorous generally due to the palate or tongue falling back on the posterior wall of the pharynx thus impeding the passage of air into lungs. His lips and cheeks puff in and out due to the paralysis of the facial muscles. His pulse and breathing are the only signs of life. The pulse may be full and slow at first (vagus being irritated) but later on it becomes rapid, irregular and tense, the body surface is cool, hot or perspiring. The temperature is normal or sub-normal and a hyper-pyrexia in the last stage means a fatal end. The pupils are dilated, contracted or unequal and react differently to light. Conjugate deviation may be present. Sometimes, when coma comes on slowly there may be a history of some premonitary symptoms e.g. intense pain in the head, patient becomes faint or slightly collapsed, or he may be sick or there may be slight convulsions before the attack. In very severe cases, the respirations and pulse are

rapid, there is profuse perspiration, face intensely flushed, patient livid, rales occur in the larger bronchi and trachea, patient gets weaker and weaker, heart and respirations fail and finally the scene is closed.

DIAGNOSIS.

1. *Head Injuries*:—Injury may or may not be present.

(*a*) In *Concussion*:—The symptoms are those of shock. There is sudden unconsciousness but the patient can be roused; pupils are equal—sluggish reaction to light; shallow, slow, sometimes sighing respiration; no true paralysis; muscles relaxed; frequent micturition may be present also.

(*b*) *Compression of brain*:— Patient completely unconscious and can't be roused; pupils immobile, often unequal, contracted at first but dilated later on; paralysis; cheeks and lips blow out with expiration; often rigidity on one side of the body is present. There is often retention till overflow with false incontinence occurs.

2. *Cerebral hæmorrhage* (Apoplexy):—Here the chief diagnostic points are:—Patient completely unconscious and can be roused; pupils usually dilated and unequal, conjunctival reflex absent, sometimes, the eyes are seen partially closed (Coma Vigil); blood pressure high; respirations,—stertorous often Cheyne—Stokes; absolute loss of functions—hemiplegia, body flaccid or rigid; often conjugate deviation of the head occurs; face is flushed, cheeks and lips puff out due to paralysis of facial muscles; pulse is full and tense; history plays an important part. Coma sets in suddenly and with convulsions sometimes.

3. *Cerebral embolism*:—Generally seen in early life; History of cardiac disease especially mitral obstruction is important. The paralysis comes on suddenly but usually there is no loss of consciousness or convulsions, but if a large vessel is obstructed there is sudden loss of consciousness.

4. *Thrombosis*:—Coma developes suddenly. Often, there is history of some premonitary symptoms e.g. headache, dizziness, loss of memory, drowziness, numbness or formication of an arm or leg or of one side of the body. These are often aggravated and often followed by dementia. History of syphilis (chiefly syphilitic endarteritis) is important. It may also be due to other causes e.g. cerebral atheroma, exhausting diseases (pthisis and anæmia) and weakness of the heart. This may occur at any age.

5. *Alcohol*:—The chief differential points are:—(1) The Coma is not so profound as in cerebral hæmorrhage and the patient can generally be aroused (2) Pupils are equal and normal or dilated; conjunctival reflex is present; (3) Pulse —rapid and strong but weak later on and the respirations are normal or snoring. (4) No hemiplegia but inco-ordination if patient walks; (6) The smell of alcohol but it is not a definite proof that the patient is suffering from alcoholic Coma as it is quite possible that his relatives might have given him some alcohol afterwards to revive him. History will bring the matter to light. A *urine test* may be of help. It is as follows:—Take some wine, add one or two drops of the wine to 15 drops of a chromic acid solution (one part by weight of potassium chromate to 300 parts by weight of strong sulphuric acid), the solution turns a bright emerald green if alcohol be present in quantity. Recovery takes place in about twelve hours generally.

6. *Opium poisoning*:—History of opium is of primary importance. Patient has minutely contracted and equal pupils and conjunctival reflex is usually present. A slow pulse, respirations slow and often stertorous; no rigidity, no hemiplegia, no flaccidity of limbs; a general weakness—patient can be roused in some cases. In very severe and fatal cases Coma deepens, face is cyanolic, pulse and respirations gradually cease.

7. *Uræmia*:—Always accompanies albuminuria, (but albuminuria is also present in small quantities in cerebral hæmorrhage); Coma less profound; the patient can be easily roused for a time by shouting but he again relapses into Coma; no paralytic weakness, no vaso-motor disturbances, no flush of congestion, pupils normal or dilated and conjunctival reflex present, pulse slow and blood-pressure high; respirations sighing, sometimes Cheyne-Stokes; general convulsions alternating with coma; a previous sudden amaurosis; early symptoms of uræmia on history e.g., restlessness, muscular temors, persistent headache, drowziness during the day with cats'sleep, vomiting, dyspnœa on slight exertion chiefly in the night, low muttering delirium, stupor etc.

8. *Diabetic Coma*:—History of diabetes; onset is often gradual and insidious; often precede severe abdominal pain (may be mistaken for perforation of intestines); a rapid and feeble pulse; respirations are often slow, deep or sighing and movements of the chest are very rapid, an air-hunger breathing.

Above all this, there are two chief characteristics of the disease, (1) a sweetish, fragrant or ethereal odour (likened to smell of apples) due probably to acetone, and (2) presence of sugar in urine; but a hæmorrhage in the fourth ventricle may also produce glycosuria. In fatal cases, the symptoms are aggravated and death takes place in one or two days.

9. *Acute yellow atrophy*:—Some premonitary symptoms of a catarrhal jaundice and increasing tenderness over the liver, nausea, vomiting and irregularity of the bowels may be revealed by history. There is headache and restlessness, delirium and convulsive twichings; deep jaundice; hæmorrhages occur from stomach, bowels and bladder. Temperature usually normal or may be 100° to 102° F though at the end it is often high; pulse slow at first and quick after meals; tongue—dry and brown; sordes collected on lips and teeth; pain and tenderness in the hepatic region. The liver dullness diminishes with great rapidity on the onset of severe symptoms. Spleen is mostly enlarged; abdomen—normal or retracted. Urine examination shows important changes. It contains both bile pigment and bile salts, extraordinary decrease in the amount of urea, uric acid and salts and the presence of two new compounds—leucin and tyrosin. An increase of ammonia co-efficient and sometimes of acetone is also present. The coma is called *Cholaemia*.

10. *Heat-stroke (Sun-storke)*:—Generally met with in three forms:—*(a) a cardiac or syncopal variety* in which there is nausea and vomiting. Body surface—pale, cool and moist; temperature—subnormal and pulse quick and feeble, pupils dilated; patient suddenly goes off into a dead faint; symptoms of cardiac failure; *(b) asphyxial forms*:—a true stroke. The same symptoms as above but respiration also fails here and *(c) Cerebro-spinal form*:—history of some early indications—weakness restlessness, sleeplessness, nausea and vomiting etc., often profuse micturition, thirst, anorexia, headache and giddiness etc. Generally, the onset is sudden, delirium, high temperature (108° —109° F;) patient restless, muscular twitchings and spasms; skin—intensely hot; rapid pulse, face flushed, heavy and stertorous breathing; contracted pupils. Death occurs a few minutes or hours after the onset of insensibility.

11. *Other organic and functional lesions of the Cerebrum. (a) Post Epileptic Stupor*:—History of previous attacks (very important); coma not so complete as in apoplexy (except in Jacksonian

fits) but like a natural sleep. No hemiplegia etc., patient can be roused ; a sudden onset, early age. Unconsciousness is also seen in *hysterical patients* who lie for hours. History will clear the diagnosis.

(*b*) *Cerebral tumours and abscess* :—History of previous ill health. There may be optic neuritis, paralysis of cranial nerves, hemiplegia etc. History of headache, giddiness and vomiting. Coma alternates sometimes or is attended with convulsions.

(*c*) *Disseminated Sclerosis* :—Previous history is of importance. In some cases coma develops, remains for a day or two and then passes into stupor. Face is flushed, rapid pulse and high temperature 104° F—105° F.

(*d*) *General paralysis of Insane* :— Previous history of mental alteration, general weakness, tremor, changes in the pupils and speech, numbness of limb or aphasia etc. The fits are usually of a syncopal type or epileptic form variety with or without loss of consciousness. Coma ends fatally.

(*e*) *Certain acute and sub-acute cerebral lesions* :—E. g. Tubercular and simple meningitis, cerebro-spinal meningitis and septic sinus thrombosis. Here, the previous history is very important to know. The onset of coma is usually late. Paralysis is very rare but muscular spasms are generally met with. On lumbar puncture the diplococci are found in cerebro-spinal meningitis and bacilli in tuberculous meningitis.

CERTAIN RARE CONDITIONS.

(a) Addisson's diseases and Raynand's disease :—In the former, the previous history of progressive general weakness, faintness, giddiness, palpitation, breathlessness, vomiting and hiccough etc., a peculiar discolouration of skin, a browning, dusky or yellow pigmentation. In the latter form, previous history of local asphyxia and symmetrical gangrene of the extremities (fingers). Coma is sudden and occasional, more rare with vomiting and hemiplegia.

(b) Malignant malaria :—History of previous attack, and presence of malarial parasites in blood, *pyæmia* may also give rise to coma resembling cerebral hæmorrhage.

(c) Coma may also be caused by *excessive muscular exertion* probably as a result of accumulation of toxic products. *Fat embolism* may also give rise to coma. This form of embolism occurs as a rare complication of fracture and especially compound fracture or fracture of atrophic bones. Dyspnœa, cyanosis

or pallor, collapse, and irregularity of heart may be present. *Certain poisons* may give rise to coma, *e.g.* botulism, poisoning form infected sausages. A history of gastro-intestinal irritation will be found present. Coma may also be developed in severe cases of *anaphylaxis.*

PROGNOSIS.

It is always grave, the gravity increases according to the severity of depth and duration. In *cerebral hæmorrhage* —half the cases recover but with paralysis, convulsions, early rigidity and a high temperature are always serious. Coma coming in slowly and progressively increasing is more unfavourable than which comes on more suddenly with less complete coma. Complete coma with much stertor, face flushed and congested, full bounding pulse and complete relaxation of all limbs are most unfavourable signs. In *cerebral embolism,* the prognosis is usually good but the paralysis also tends to remain here but most likely to pass away in children. If embolism is due to septic endocarditis the prognosis is, then certainly fatal. In *thrombosis*, it is good if due to syphilitic endarteritis, less favourable in aged and hopeless if associated with exhausting diseases and anæmia. The prognosis in *opium poisoning* depends upon the quantity of opium taken and upon the promptness of treatment. *Uræmic—coma*—here also the prognosis is severe but cases recover under judicious treatment. *Diabetic coma* is nearly always fatal.

TREATMENT.

This may be divided for convenience sake into (I) General and (II) Special (according to the causes.)

(i) General Treatment :—Perfect rest and quiet are most essential. If the patient is on the ground it is better that he should remain there instead of troubling him by taking him on a charpai. If on the ground he should lie on a mattress. The head and shoulders should be slightly raised and he should be turned to one side to prevent the tongue falling back on the pharynx or the tongue be pulled forward by means of a tongue forceps. This will prevent stertorous breathing and allow full play to the uppermost lung. Administration of food by mouth should be avoided as it is quite possible that it may pass into the air passage ; moreover, the patient can do well (without any harm to self) if he is not given anything by mouth for a day or two. He should be fed by rectum if necessary. The bowels should be

opened—a brisk purge is indicated either by two drops of croton oil on sugar or 4 to 8 grs. of calomel should be put on the tongue followed by enema of castor or turpentine oil. Bladder should be carefully watched and if necessary, catheterization should be performed. If the pressure is high bleed the patient 10 to 20 ounces. An ice bag or some other cooling lotion may be applied on head. Sometimes, leeches are usefully employed to the temple. Lumbar puncture may relieve the internal pressure. Alcohol should, on no account, be given. Blisters to the back of the neck and mustard plaster to the calves or sole of the feet to rouse the patient are worse than useless. If the pulse is full and incompressible venesection may be considered. In later stages patient should be carefully nursed. The fear of bed-sores should be kept in mind and for this a water bed may be necessary. If the heart and respirations are failing stimulants may be necessary. Digitalin, strychnine or atropine may be injected subcutaneously. Hot-water bottles should be applied to the feet and patient covered with blanket.

(ii) Head injuries:—Remove the cause. If compression is due to a depressed bone or a foreign body immediate operation is necessary; collections of pus should be opened and blood clots removed and dressed. Above all this, the patient should be treated on general lines as necessity arises.

(b) Apoplexy:—Treatment should be carried on general lines as necessity arises. For *embolism* treatment is the same as in apoplexy. In *thrombosis* (other than syphilitic) stimulants may be necessary.

(c) Alcohol:—General treatment and a strong emetic should be given, for this an injection of apomorphine hydrochlor is the best. Stimulants should better be avoided but they may be absolutely necessary when prostration occurs. In such cases give ammonia, ether or spirits. When the patient has come to his senses give Pot. Iodide, bromidis, capsici, cinchona etc.

(d) Opium poisoning:—Wash out the stomach well by stomach pump. If this is not available give a prompt emetic. Emetic in the form of hypodermic injection of apomorphine hydrochlor is the best. Try to rouse the patient and keep him roused by cold affusion, sinapisms and flicking with a wet towel. In severe cases faradic current may be used. Artificial respiration should be tried along with the electricity. Give hot strong infusion of coffee freely if the patient can swallow; give a snuff of smelling salt also. Atropine or strychnine should be injected hypodermically if respirations or heart are failing. These are also antidote to opium. Pot. permanganas 10 15 grs. dissolved in 3 to 8 ounces of water should be repeated every halt an hour for three or four times. It should not be used in concentrated solution.

(e) Uræmia:—Give a hydragogue purgative at once *e.g.*, **Pulv elat Co.**, Pulv. Jalap Co., or a concentrated solution **of mag. sulph. Hot packs, hot air or hot vapour baths to the skin or pilocarpine gr. ⅛–¼ injected hypodermically. Venesection (10–20 ounces) should be performed and transfusion of normal saline solution should be done after venesection to compensate the loss. Lumbar puncture with withdrawal of 10–15 c.c. of fluid is recommended. It may arrest convulsions.** Chloroform also relieves convulsions. If there is pulmonary œdema give atropine in large doses.

(f) Diabetic coma:—Give a vigorous alkaline treatment internally on the first onset *e.g.*, soda bicarb; soda citras in large doses (1–2 ounces) by mouth. It may also be given in solution quantity per rectum in the same quantity or 2 or 3 ounces in 50 or 60 ounces of water may be injected into the connective tissues up to an ounce or more of soda bicarb in 24 hours or three pints of a 2 % solution intravenously. Stimulants are also required. If so, give brandy, ammonia, æther, injections of camphor in oil or put the patient in hot bath, hot-water bottles to the feet and legs applied or warm normal saline solution injected intravenously. If soda bicarb 1–2 % is added to it, it is better all fats should be stopped and protein should be continued.

(g) Heat-stroke:—The patient should at once be removed to the coolest place. Put him on bed. Take off all clothes and pieces of ice should be rubbed all over the body; give a large enema of iced cold water; cold sponging should also be carried on or a douche given. If there is no ice wring out a sheet in the coldest water and wrap the patient in it, at the same time the water from a can should be allowed to dripple all over the body. If cold water is also not available add a pound of salt to a *bucket* of water, the juice of several limes and a quantity of vinegar or a little Eau-de-cologne and sponge the patient with this mixture. Ammonia nitrate 8 ounces dissolved in a quart of water is also a good combination for this purpose. Even if by the above treatment the temperature does not come down and the symptoms are aggravated as shown by cyanosis, bounding pulse, laboured breathing and laboured heart, bleed freely. If there is no flow of blood give normal saline at 98·6° F intravenously. Try artificial respiration if breathing stops. On the other hand, if the temperature in the rectum falls to 101. 6° stop

sponging for fear of collapse. If the temperature falls suddenly cover the patient with blankets. Hypodermic injections of strychnine, camphor in oil, ether or digitaline should be given hypodermically.

(h) In cases of poisonings :—What to do is to give an emetic at once—apomorphine hypodermically is the best and the patient should be treated according to the symptoms present.

References :—

1. *Savill's medicine.* 2. *Taylor's medicine.*

THE SNAKES

BY

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Classification and characteristics :—The snakes are classified into four kinds viz, the cobra, the Russell's viper, the krait and the mixed variety called (Venthiran). There are 26 varieties in cobra, 16 in viper, 13 in krait and 21 in mixed kind. The distinguishing characteristics of each class is given below. The snakes have eighty legs on either side too small to be seen by the naked eye. They have no special organ of hearing. They see and hear with the eyes.

Cobra.	Russell's Viper.	Krait.	Mixed kind (Venthiran).
1. Has large hood.	1. Is short in length.	1. Has numerous longitudinal and transverse lines on the body.	1. Symptoms complex in nature.
2. Is very rapid in movement.	2. Has circular patches on the body.	2. Has a smooth and vily surface.	2. There may be found manifestations of all the three humours.
3. In the manifestation of symptoms, the nervous and the circulatory humour is predominant *i.e.* Vayu or Vatha Kopa.	3. Slow in movement. 4. Billious humour predominant *i. e.* Pitha Kopa.	3. Phlegmatic humour predominant *i. e.* Kabha Kopa.	3. More poisonous in the 1st and last week of each of the four seasons, as also at the terminal periods.

The snakes are again conventionally divided into four main sections with differential peculiarities of each, as Brahmana, Kshathriya, Vaisya and Sudra.

THE CHARACTERISTICS OF BRAHMANA, KSHATHRIYA, VAISYA AND SUDRA.

Brahmana.	Kshathriya.	Vaisya.	Sudra.
1. Color golden,	1. Color yellow.	1. Color gray or light blue.	1. Dark color.
2. Wander in the mornings	2. Wander in the noon.	2. Wander in the evenings.	2. Wander at night.
3. Food, air and sweet and fragrant flowers.	3. Food, rat, also milk, water and other sweet things.	3. Food, frogs, saltish meat etc.	3. Food, anything got; will like good smell.
4. Resort in under-ground places-where breath is deposited, in granary, forests and mountains.	4. Resort near buildings, temples etc.	4. Resort in the streets or lanes, in trees and in courtyards.	4. Resort, near water.
5. Look upwards.	5. Look directly straight.	5. Look right and left.	5. Look downwards, towards the earth.

CAUSE OF BITE, APPEARANCE OF BITE MARKS AND THEIR SIGNIFICANCE.

The snake seldom bites a person without a cause. When it gets frightened at the sudden approach of a person, it bites as also when it is intoxicated by the vigour of youth or exuberance of energy or sexual passion. When siezed with hunger or thirst it bites a toe or finger or any fleshy part that happens to come near it, and this is invariably on the mistaken notion that it is food. When a person unknowingly happens to pass near its resort during its lying-in-period, it runs after him and bites thinking that the approach of the person was to kill its young ones. Here there is anxiety and anger mixed in the act. Touch or contact and consequent injury is generally the cause of bite. Any previous harm done to it causes it to lie in wait for that man and when it gets the opportunity, it bites him with vengeance. It also bites sometimes just to relieve the pain from the tension of the venom-filled cavity.

muscles; asphyxical symptoms, convulsive seizures in cobra bite, failing respirations without convulsions in Krait bite; stoppage of respiration; cardiac failure in from half to thirty hours after the bite.

IN CASES OF VIPERINE BITES (RUSSELL'S VIPER, ECHIS CARINATA, GREEN-PIT VIPER AND HIMALAYAN-PIT VIPER.)

(a) Local symptoms:—Persistent pain, constant and incessant oozing of hæmolysed blood from the punctures; this is the most characteristic of all local symptoms. On incision into the site of the bite, the tissues from the effects of clothing, hæmolysis etc., show a condition resembling red current jelly.

(b) General symptoms:—Are those of multiple hæmorrhage and cardiac failure. Epistaxis is frequently seen. Petichiæ are often extensive. Hæmaturia and melena may be met with; also purpura, sub-conjunctival hæmorrhages and hæmoptysis. Death takes place in from 2 to 7 days from cardiac failure.

THE STAY AND COURSE OF CIRCULATION OF A LETHAL DOSE.

According to the Sastra, the poison remains at the site of bite for 100 seconds. Then it enters into the peripheral and general circulation, passes on to the forehead, thence to the eyes and spreads over the face and appears in the radial pulse. Then finally penetrating into the tissues, spreads over organs and after organs. One who follows this course of the spread of poison will more or less concede that our ancestors had a better notion of the course of blood circulation than what the Western physiologists of later period have credited them with.

PROGNOSIS.

1. Frequent perspiration, stupor or unconciousness, fits or convulsions, weakness in joints, dryness of face, deep expiration and shivering will often be noticed. Pain and heaviness in the chest will be complained of. The heart will be restless and irregular, the eyes wandering and the look perplexed. There will be vomiting of mucus and bile. The nails and teeth become blue; and the mouth and lips blackish in hue. The voice will convey a nasal sound. The internal canthii appear red and angry. The eyes become injected and the eye-balls become more circular in appearance. All these signs and symptoms and many other conditions of a similar nature together with the phenomena of characteristic visible bite marks at the hands or palm, the arm-pits and under the ears when those

surfaces are rubbed with ashes, are of a very grave import and they usually prove fatal. Another set of symptoms :—

2. Development of swelling below the ears which subsequently burst (abscess); general anasarca of the whole body, sometimes appearing fully water-logged; waxy or oily appearance of the face; picking of the nose; multiple hæmorrhages through big and small openings, even through the minute pores of the skin; rolling about from place to place and side to side; frequently lying and getting up from bed; craving for cold things; eversion of the lips; palpitation of the heart; throwing out the extremities; muttering delirium; mournful responding to calls without being called; vertigo; appearance of hæmolysed blood at the site of bite; œdema round the puncture; general pallor; staggering look; picking up of clothes, with a tendency to undress or remove; change of body smell; diarrhœa; retention of urine and absolute constipation in some cases and lastly, drawing in of genital organs—all these indicate that the recovery is beyond hope and the end very near.

CASES AND COMMENTS.

THE MODE OF TREATMENT OF LEPROSY AS FOLLOWED IN A FEW CASES AT OSMANABAD

BY

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In the middle of June I was deputed to Dirhapally Leper Asylum to observe its mode of treatment there. I remained there for a month and a few days and returned to my headquarters Osmanabad. There is neither time nor place to enter into a detail account of the *modus operandi* followed in the treatment of leprosy at Dirhapally. So, I confine myself to my experiments with their results in a few lepers at Osmanabad. I will take cases one by one with the treatment and result. Of course, as there was no microscope I had to do without it.

Case No. 1. Krishnaji Kakade. Age 45 years. Hindu male. Resident of Osmanabad. It was a mixed type *i. e.* an æsthetic as well as nodular. The whole body was anæsthetic. Ulcer on the right little finger. Nodules on the eye-brows and between them and on the lobules of the ear. Hands spade-like and swollen. Back of the feet swollen. Iritis present in both

the eyes. I began with sodii. morrhuate 1 c. c, hypodermically and 1 c. c. of the same intravenously alternately once every 3rd day. Ol. Chaulmugra No. 5 in sugar in the morning and Sodii Hydrocorpus Tab. one in the evening to be taken internally every day. Chaulmugra oil and equal quantity of sweet oil (sterile) to be rubbed to the whole body 2 hours before bath every day. Eyes washed with boric solution and atropine and cocaine drops instilled. This treatment was continued for 15 days. The nodules disappeared along with swelling of the hands and feet. It was 10 years' duration. After this, I began to give him hypodermic injections only and I found it to have greater effect than by intravenous one. For some reason or other the patient stopped treatment.

CaseNo. II. :—Vithoba Wardkar, a Hindu male of 45 years, resident of Osmanabad came to me for treatment. Of course, I had to take promise from him that he will continue the treatment till he is cured completely which will be of six months' duration. He was left as hopeless by one and all and destined to die. Meanwhile, they came to know that a new doctor has come in the previous Asst. Surgeon's place and they wanted to try me and so the above agreement was made.

There was severe bleeding from the nose after the fit introducing a swab in the nose. There were perforating ulcers of the left foot with carious bones. There was awful smell and everybody used to shun the patient including even the medical men. There was complete anæsthesia of the whole body which was testified when I removed the carious bones from the perforated parts and enlarging the various sinuses by simply putting a firm ligature at the ankle joint. The patient did not feel anything. The chief trouble of the patient was he could not breathe properly 'breath caught in the chest'. Restless due to the head (as if filled with maggets) He could not drink even 1/8 seer of milk in 24 hours. He was mere skin and bone. It was of the duration of 14 years. I began the treatment on the following lines:—1 c. c of sodii morrhuate every 4th day. Nasal drops (Creosote 1 c. c. + olive oil 2½ c.c. + 1 c.c. of the esters of Hydro corpus and 1 gram. of camphor) to be put once or twice in a day. Sweet oil and chaulmugra oil equally to be rubbed to the body 2 hours before the bath. Careful antiseptic dressing of the ulcers. Same carminative mixture to make him digest whatever little quantity of milk he used to drink. This treatment was

commenced on the 15th August 1926 and was continued for 20 days, when I came across an article on the treatment of leprosy in the Indian Medical Gazette of August Number. So I took up the initiative and replaced the carminative mixture by the powder of hydrocarpus seeds 3 parts + 1 part of powder of canabis indica leaves of which ½ dram dose was given twice a day, early morning and at bed time. At 9 A. M. 2 P. M. and 6 P. M. cod-liver oil with creosote emulsion was given with ½ seer of milk instead of sodii morrhuate Inj. I began Ethyl Easters of Hydrocorpus Injections in increasing doses. Wonder to state that the patient has made rapid improvent. He who could not move an inch without others help, has begun to walk half a furlong without any others' help. The ulcers which were of 14 years' duration have healed completely. The anæsthesia of body has gone. He is putting on fat. He has become a horacious eater. The leprotic skin has become normal and he is on the way of complete cure which, I hope, will be within a few months.

There were 12 to 15 cases more treated by me; but as they did not stick up to the treatment for any specified time, it is useless to mention them with any details.

So the treatment of leprosy should be:—*(a)* 1 to 3 parts of canabis indica leaves and hydrocorpus seed powders given in ½ dram doses, twice a day. *(b)* Chaulmugra oil and sweet oil (sterile) equal parts for rubbing the body 2 hours before the daily bath, *(c)* nasal drops prepared as above to be put once a week or according to the condition of the patient *(d)* hypodermic injections of ethyl esters of hydrocarpus in increasing doses upto 10 c.c. every 4th day (slowly) unless there is any severe reaction, which should be treated according to the condition. Good nourishing diet should be given freely according to the demand and digestion. Inter-current diseases if any, should be treated on proper lines.

ADMINISTRATION OF CASTOR OIL AS A ROUTINE PURGATIVE TO INFANTS

BY

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The routine administration of castor oil to infants from the time of birth up to the age of one year is a practice commonly prevalent in extreme Southern India, especially in the districts

of Madura and Tinnevelly. It is also in a less common degree practised in the other Tamil districts of the Eastern Coast.

I have found in my brief experience and observation that children accustomed to a regular dose of castor oil every now and then, are little attacked by gastro-intestinal troubles, and are to some extent free from infantile diarrhœas, provided of course other fruitful sources of infection are avoided. The dosage and frequency vary in different families. But, in my opinion, the dosage which at the beginning when the child is born is from ½ to 1 teaspoonful may be gradually increased to ½ oz. during the course of next few months. First, the castor oil is given every day up to 3 months of infancy and later on every alternate day up to 9 months or even 1 year in some cases. An infant of 7 or 8 months can be safely given ½ oz. of castor oil and only such a quantity ensures a steady and efficient bowel action. The frequency after 6 months of age need not in non-obstinate cases be so high as every alternate day ; but the oil must be given at least twice a week thenceforward. Too small a dosage as a teaspoonful to a child 6 months old or older is inadequate, and many cases of unsatisfactory bowel action after castor oil, and the alleged disagreement of the oil to many children are due to this low dosage.

The oil may be given as cold-drawn mixed with a little hot water or cold milk. Occasionally, I have noticed in families the use of a small quantity of garlic pounded, mixed with the oil, the whole boiled and then administered when cold. This is supposed to do away with early bowel complaints of a vague nature.

There is absolutely no harm in the routine administration of the oil, in the quantities indicated above and castor oil is no irritant as many seem to think.

The nauseous taste of the oil is felt only by us adults and grown-up children, and we should not carry this prejudice to little children for whom the oil is such a valuable anti-constipative and preventive agent.

It is my observation that children accustomed to this method rarely suffer from chronic constipation and its attendant evils in the present day. As I have already stated above, these children rarely suffer from *infantile diarrhœa*, as their bowel is regularly washed out and kept in a tonic condition, and consequently no infection takes hold on them,

Unfortunately, I find, that in some places, doctors think they are antiquated when they advise a measure like this, and are carrying their prejudice to a degree foreign to our natural environment and habits.

In our local Medical Association at Coimbatore, we had an interesting discussion on this subject of castor oil administration at one of our meetings. A few of the members present opposed the measure but the majority were in favour of it and claimed that the administration of castor oil as a routine is a valuable prophylactic in our hands. Col. Chalmers, our President, was surprised at the enormity of favourable opinion, and he expressed the hope that the subject will be thoroughly discussed in our medical journals and observations and experiments fully made to prove or disprove the efficacy of the method.

My chief object in writing this paper is to elicit information from the numerous medical men of India, as to their opinion and experience about this problem.

GUINEA-WORM INFECTION

BY

DR. H. M. HANDE, COIMBATORE.

I am reporting the following case as it may interest such of the medical men as have not worked in areas which are endemic to guinea worm, to know what curious and funny symptoms may sometimes be caused in patients who have that infection.

Male aged 24, Hindu, a police recruit was brought to hospital at 9 A. M on 28—3—'26, complaining of severe pain in the region of the lower part of the sternum and epigastrium. He had had also rashes all over the body, not unlike that of secondary syphilis with very severe itching all over the body. On thorough examination, a tiny thick fleb was noticed over the external maloulus of left leg which was found to be little swollen. The history was, the recruit who was on petrol duty the previous night got ill suddenly at about 3 A. M. His temperature on admission was normal, pulse not clearly perceptible, heart excited. No history of injury or poison, pupil normal. No venereal history of stigmata. As I was still examining the patient, the pains in the chest and epigastrium became more and more intense and agonising. The patient was restless, giddy and fainting. A broad enema was given.

Mag. sulph. 3 vi in solution was given statem. Mustard plaster was put te the painful region. Two doses of bromide and chloral were ordered at intervals of two hours. I left the patient at 10-30 A.M. when he said he felt a little better.

At 12 noon, when I saw the patient again, he was simply rolling on the floor of the hospital with agonising pain, this time not in the chest but to a considerable extent all round the umbilicus. A mustard plaster was put on the abdomen at the seat of pain. A small quantity of urine was obtained for examination. It was acid and contained plenty of albumen. Specific gravity could not be ascertained as there was no sufficient quantity of urine. Barley water and soda water was given in large quantities. It is sufficient the patient had not the slightest backache or lumbago. The itching and rashes continued. I again left the patient at 1 P.M. as he was a little asleep and his groanings ceased a little

When I came back to hospital at 3 P. M. the pain in the abdomen had completely ceased. What the patient now complained of was severe pain in the penis especially at the tip and in the urethra which he said was burning like fire when a drop of urine passed through it. The patient now had actual strangury and he begged of me to pass a catheter and take off the urine. I, however, gave him diuretin grs. 10, Tr. hyoscia-mus 3i, aqua chloroformad. oz, i. statem and assured him he will be able to pass urine painlessly in half an hour. He actually passed more than one pint of urine in about an hour's time and that without pain and expressed to me with delight that all his symptoms are relieved and that he is perfectly alright now.

He slept well the whole night and passed urine freely from time to time.

Next morning *i. e.*, on 29—3—26, he had no signs of illness except the fleb and the slight swelling in the left leg. Urine: sp. gravity 1010. Reaction acid, no albumen, no phosphates.

On 30—3—26, ditto; but the fleb had burst and a white spot was seen in the centre which happened to be the end of a guinea worm.

Later on, in the course of two months he was admitted thrice for guinea worm abscesses in different regions, but manifested no constitutional symptoms and diagnosis was easy owing to previous history.

NOTES ON CERTAIN CASES OF CELLULITIS CLINICALLY RESEMBLING MALIGNANT PUSTULE

BY

DR. M. P. CHACKO, L.M.S., PALAI, TRAVANCORE.

My attention has been drawn recently to certain remarkable cases of cellulitis, affecting different parts of the human body resembling Anthrax. The affection in almost all cases was due to the ingestion of the flesh of dead cattle. Since the Bacillus Anthracis was not demonstrable in the specimens submitted for bacteriological examination and as Anthrax is unknown among cattle in these parts these cases are of peculiar interest and importance.

T. aged 35 years, came to the out-patient department of the Lalom Hospital with a pimple over the left side of the chest above the nipple. The pimple next day became converted into a vesicle while the surrounding tissues became red and brawny. Gangrene occurred in the centre, probably the focus of inflammation and around this secondary vesicles formed. In the centre was a dry black slough, round this a number of vesicles and around this an area of redness, brawny induration and oeduna. There was little pain and no suppuration. The axillary lymphatic glands were enlarged. There was moderate pyrexia.

This patient ate the flesh of a dead animal two days previously. He gave another version of the origin of the inflammation. He is a drummer by profession and as the drum is held hanging from the shoulders by a leather belt, the rubbing of the leather might have produced an abrasion resulting in subsequent cellulitis. But this theory was disproved two days later when his son who also partook of the same meat came to the out-patient department with a similar pimple on his forearm.

TREATMENT.

The tissues surrounding the vesicles were treated with carbolic acid injection 1 : 20 and the gangrenous area was cauteris ed with pure carbolic acid. Sclavo's serum was not available and was not given. He was given a mixture of Tinct ferri. perchlor. Liq. strychnine and quinine. Next day, the patient died. No bacteriological examination was made.

2. O. aged 15 years, the son of the former came to the hospital with a pimple on the forearm. The clinical appearances were exactly those of the former but were of less severity. He admitted he also partook of the flesh from the dead animal mentioned in case No. 1.

TREATMENT.

Same as before. After the injection the patient improved, the sloughs separated leaving a granulating surface. He improved with the routine treatment and was cured within a week.

Bacteriological Report.—Blood films show bacilli resembling Anthrax. Gram's stain. Numerous streptococci and staphylococci. On culture, no anthrax bacilli were found.

3. J. aged 15 years. Married two days ago. He partook of meat during the feast probably from a dead animal. He came to the hospital with a pimple on his face on the left side of the cheek. The clinical appearances were similar. The usual treatment was adopted. Next day, the patient got worse and sent for me at midnight. On examination, the left side of the face and neck was found red, brawny and œdematous. There was difficulty of breathing. The temperature was high and pulse rapid. The case seemed desperate. In addition to the carbolic acid injection and cauterisation with pure carbolic I injected Neo-salvarsan 45 gramms intravenously. He made an uninterrupted recovery. No specimen was available for bacteriological examination.

4. D. aged 30 years. partook of meat bought from the market two days ago. He came to the out- patient department

with a pimple on the dorsum of the left hand. Next day, the case showed all the features of the above cases. Carbolic acid 1: 20 was injected and the gangrenous areas cauterised with pure carbolic acid.

Bacteriological Report:—Blood films showed streptococci and staphylococci. Cultures and sub-cultures failed to show bacillus anthracis.

COMMENT.

The clinical symptoms and pathological appearances were exactly similar to those of Anthrax. But the absence of bacillus anthracis in the specimens submitted for bacteriological report and the incidence of only one fatal case out of four and the entire absence of animals suffering from Anthrax in this locality point to this affection as a disease sui-generis. The director of the Vaterinary Department made an elaborate investigation to find out any Anthrax infected animal in the locality, but with negative result.

A CASE OF LARVAE AND ITS TREATMENT

BY

AISHIRAN TOPANDAS, L. C. P. & S.

I was called to see a patient at 3 P.M. who was discharging a thin watery blood-stained fluid from the nose. The person was seen in great restlessness. All his clothes were full of blood and there was foul odour coming out from his nose. The face was swollen and bloated up. His eyes were swollen due to the inflammation of cellular tissue. His relations got tired of him. When I saw him I gave him the following:—

Rx.	Cal. chloride	*3i.*
	Pot. bromide	*3i.*
	Spt: chlorof.	*3i.*
	aqua.	oz. ii.

Ft, mist. 3, I. T. D. every 4 hours.

Sol. of adrenalin chloride to be plugged into the nose This solution had but little benefit. In the morning, I again went to see him. The blood was small in quantity. When I tried to remove the plug of cotton from the nose with the forceps a larva came out into the grip of the forceps. It was about 3/4" long with various segments having both ends conical. On careful examination I found that with its one end it was sticking to the tissues. When I saw the larvæ, at once, I remembered an article written by Bhauram, L. M. P. I sent for a bottle of chloroform and put a few drops of it on cotton wool and introduced it into the nostrils. The patient cried out that he could not bear it. After five minutes he expectorated out a few larvæ. They were half dead. I removed the plug. About one dozen of them came out one by one which I removed. I repeated it once again and this time very few came out which were all dead,

Then I put once more and the next day I found that all bleeding had stopped, the swelling all disappeared, and his eyes were as before. The patient went to some hill station for a change of climate.

I, therefore, write this article in corroboration with Mr. Bhauram Garg's advice which I found practically successful in personal experience.

A CASE OF SNAKE BITE

BY

DR. GHANDULAL L. MEHTA, M.B. B.S.

History of the case:—A Hindu patient named Ala Hira, aged 27, native of Sidhpur (Gujarat) went to the other side of the river Saraswati to fetch some indigenous plants early morning on the 13th October. He was bitten by a snake there at 8 A. M. on the left foot just above the small toe He tried to come to his residence which was about a mile from the place where he was bitten but fell down on the way whence he was brought by some passers-by to his residence. After he reached his home his relatives took him to all sorts of Bhuvas (who are considered to be experts in getting rid of poison of snakes etc. by mantras). All this proved of no avail and the patient began to grow worse. At about 4 P.M. in the evening he was brought in a carriage to my residence. When I examined him, he was in a very drowsy condition, his pulse was fast and weak, temperature was sub-normal and he was perspiring like anything. The patient's relatives gave histroy that he was vomiting at every half an hour.

I at once gave him an injection of anti-venom serum (Michel Roger's) and put a crucial incision on the bite and allowed blood to flow freely. Then I applied to the wound strong sol. of Pot. permanganate. Internally, I gave him stimulants like Spt. vinum gallici, Liq. strichnine, Tr. digitalis, Spt. ammonia aromaticus etc. At about 9 P. M. I was called at his residence. On examination I found his pulse was better, temperature normal, but still drowsiness persisted although to a very little extent His vomiting had stopped. I gave him another injection of the same anti-venom serum. Internally, the same mixture was continued. He was allowed to take coffee, milk and water only.

Next morning, at 9 A. M. he came to my dispensary walking, quite hale and healthy except a little inflammation on the wound.

Points of interest are:—Effect of anti-venom serum after an interval of eight hours, and the necessity of keeping one box of Michel Roger's anti-venom outfit in every dispensary whether charitable or private in tropics.

The Antiseptic

NOVEMBER, 1926.

INDUCTION OF ABORTION.

One of the most important subjects discussed before the section of Obstetrics and Gynæcology during the last annual meeting of the British Medical Association was the vexed question of determining the indications for and the methods of terminating pregnancy before the viability of the child. Medical men of the eminence of Drs. T. W. Eden, Comyns Berkeley, Louise McIlroy, R. H. Cole and many others who took part in the discussions, though they disagreed on many points, agreed that no hard-and-fast rule could be laid out for the guidance of the general practitioner. Every case has to be judged on its own merits. There are, however, three aspects of the question to be considered—the legal, the ethical and the therapeutic.

The legal aspect is that induction of abortion is always against the interests of the state. Therefore, induction of abortion has been penalised as criminal except in cases of dire medical necessity and even that in the presence of a second opinion.

Concerning the ethical aspect, every medical man will have conscientious scruples against the induction. No social or economic interests apart from the medical needs of the case should ever be taken into account.

The medical aspect of induction is aptly divided by Prof. Louise McIlroy into two headings—namely, (1) induction for diseases complicated by pregnancy, and (2) induction for diseases due to pregnancy. We will now give a brief summary of the main diseases considered and conclusions arrived at.

Tuberculosis of the lungs by virtue of its extreme prevalence was the first disease considered under the first heading. All, including continental obstetricians, agree on terminating pregnancy in

active disease with high fever and bacilli in the sputum because parturition weakens the patient and enables the disease to advance rapidly. If, however, the patient is dying no such induction is advocated. Some, however, argue that it is unfair to cut short the life of a potential individual on the ground of saving the mother. They argue that the mother's health is usually very weak and the active tubercular process rapidly progressing and as such, the life of the mother cannot be guaranteed even after induction of abortion. But against this statistics collected by Eden and Couvelaire show that of infants born of mothers with active consumption, 38% do not survive the first month of life and even those that survive are seven times more likely to become tuberculous than those of healthy mothers on the conclusion that pregnancy is a risk to the mother and not an advantage to the child; they recommend induction of abortion in the early months. In the case of healed or arrested cases abortion should be performed only after consultation with a physician and with due consideration of family and previous histories, symptoms, physical signs, X-Ray appearances, temperature range and sputum record. In all these, cases prevention is better than abortion and for this, either the fallopian tubes must be tied or the ovaries sterilised.

Heart disease constantly comes up before the practitioner for consideration. In all such cases the nature of the valvular lesion is of little importance. The most important *factor is the state* of the cardiac muscle. Consensus of opinion points to treating the heart condition and allowing the pregnancy to proceed unless the myocardium is severely damaged or a previous pregnancy has seriously taxed the heart and endangered the patient's life or when medical treatment has not relieved the situation. After a very valuable discussion Dr. Cole comes to the conclusion that pregnancy should be terminated only when there is complete auriculo-ventricular block; when there is pulsus alternans not associated with a severe degree of tachycardia and therefore indicative of extreme exhaustion of heart muscle; in auricular fibrillation with severe tachycardia uncontrolled by digitalis; when there is Mitral Stenosis in a severe form as evidenced by a small pulse together with a murmur beginning after the second sound and continuing all through the ventricular diastole and auricular systole or if there is auricular fibrillation, mitral incompetence or chronic adhesive pericarditis or when there

is severe aortic incompetence as evidenced by great alteration in character of pulse and blood-pressure and size of heart or if the patient is subject to syncopal attacks.

Chronic nephritis was also discussed as being of great risk to both mother and fœtus. Dr. Eden's conclusions regarding the induction of abortion seem to us to be the most reasonable. He is of opinion that (1) A woman with chronic interstitial nephritis of the azotæmic type may be allowed to carry on under supervision with her first pregnancy. (2) In subsequent pregnancies early abortion should be induced if a serious renal break-down associated with uræmic manifestations occurred in the previous pregnancy. (3) In any woman with chronic nephritis the occurrence in early pregnancy of albuminuria, and œdema of the renal type, justifies, if it does not actually require, the induction of abortion.

The plea of insanity is sometimes put forward for terminating pregnancy. This subject is discussed under various groups. The general conclusions arrived at are that (1) if insanity develops in the later months of pregnancy no interference is necessary because it persists even after the birth of the child whether the patient is prematurely delivered or not; (2) in the case of unmarried girls who have been wronged or have gone wrong and for whom medical advice is sought to induce abortion to relieve mental distress termination of pregnancy is not advisable; (3) in the obsessional type of patient where the fear of death is very acute, induction of abortion may be necessary; (4) in those cases where there is a bad family history with previous attacks of insanity especially after labour Cole thinks that it must be allowed to continue and the question of some such procedure as obliteration of tubes or sterilising ovaries should be considered; (5) in insane husbands home on resulting in wife becoming pregnant all agree that no interference is justifiable. One cannot do better than close this aspect in the words of Cole who says "our duty, no doubt, is first towards the patient, but we must bear in mind that she is carrying the germ of another being which demands our consideration, and which the State safeguard by legislation. Whatever may be said as regards tubercle, renal or other disease which may interfere with the life of the mother

during pregnancy, it is the exception rather than the rule with brain or mental conditions unless accompanied by disease of other organs."

The obstetric indications that were considered important to be discussed were only three—toxæmic vomiting, vesicular mole, and retention of a dead ovum. Dr. Eden thinks that induction of abortion is justifiable only in those extreme cases of toxæmic vomiting accompanied by pyrexia, albuminuria, raised blood pressure and wasting and in which medical treatment is of no avail.

Vesicular mole, when diagnosed, is unquestionably an indication for induction of abortion. When the characteristic syndrome—haemorrhage, usually slight and continuous, over-enlargement of the uterus, absence of physical signs indicating the presence of a fœtus in the uterine cavity and a characteristic semi-solid consistence—is present and a diagnosis made, the best and perhaps the only method is to terminate pregnancy.

The presence of a dead ovum in the uterus is easily diagnosed and though it will, at sometime or other, be expelled on the ground that a foreign body should not be allowed to occupy a visceral cavity and also to relieve the patient of a great deal of suspence and annoyance it is generally recommended to induce abortion.

Having once decided to induce abortion the question how best to do it with the least possible harm to the already-weakened mother should be considered. This is best considered according to two factors: (1) the urgency of the need for terminating pregnancy—whether a slow or rapid method is necessary, (2) the date of the pregnancy—that is whether the period of gestation is before or after the end of the first three months. Before the end of the first three months Dr. Barris of the St. Bartholomew's Hospital is of the opinion that the best method is to dilate the cervix and evacuate the uterus. With strict antiseptic precautions a laminaria tent is introduced to aid subsequent dilatation with metal dilators if necessary and when the dilatation is sufficient, a gloved finger is passed and the ovum separated and either squeezed out of the uterus or withdrawn by a blunt forceps. The decidua, it is advised, should be separated by the finger or a blunt curette used when necessary. Plugging, it is said, may be used when hæmorrhage should be temporarily controlled. Ether or gas and oxygen is said to have given better results than chloroform as an anæsthetic.

After the third month, the evacuation of the uterus is a much more difficult problem because of the size of the fœtal head and the difficulty of dilating the cervix without severe laceration. The slower methods of terminating are therefore more suitable in these cases. These methods—which include rupture of the membranes, plugging of the vagina and cervix, dilatation of the cervix by means of laminaria tents or the hydrostatic bags, introduction of bougies and the administration of drugs such as castor oil and quinine have all been used either singly or in combination.

THE BRITISH SOCIAL HYGIENE COUNCIL.

We invite the attention of our readers to the courses of lectures to be delivered in Madras by the British Social Hygiene Council Delegation on Venereal Diseases. Admission is free and without tickets for medical men. All are cordially invited to attend. The programme is as follows:—

1926			
December	10th	Arrival of the delegates. Inaugural meeting at Government House, 6 P.M.	
,,	11th	Clinical lecture in General Hospital.	
,,	13th	do.	Royapuram Hospital.
,,	14th	do.	Victoria Caste and Gosha Hospital.
,,	15th	Post—Graduate Course. I Lecture. Medical College.	
,,	16th	do.	II do.
,,	17th	do.	III do.
,,	18th	do.	IV do.
,,	20th	do.	V do.
,,	do.	Lecture for the Nurses' in General Hospital.	
,,	22nd	do.	
,,	23rd	do.	Nurses Association.

All the above Lectures will be delivered by Dr. Lees.

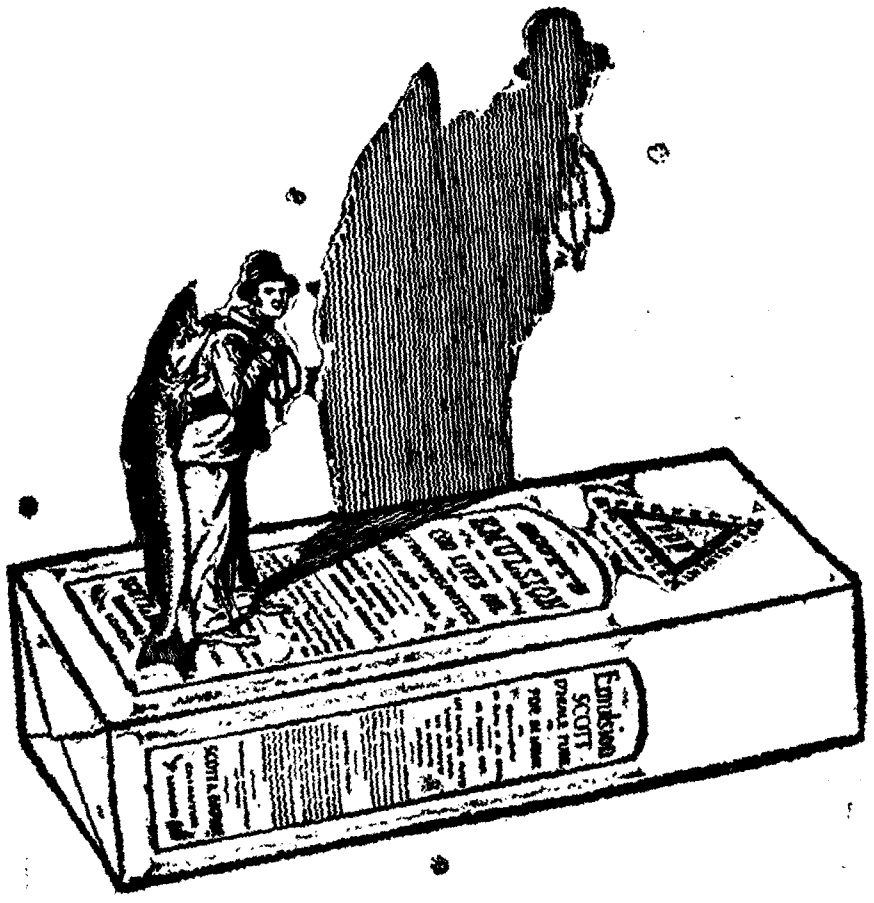
Time.—10-30 to 11-30 A.M.

CURRENT TOPICS.

OPHTHALMOLOGY.

Medical Treatment of Cataract:—Where the opacity is central, mydriasis may assist the vision, and homatropine, 1% or atropine 4% may be used; but a watch must be kept that the intra-ocular tension does not rise. The former drug should be used at first, as it can be counteracted by eserine should the tension increase. From time to time, various forms of treatment are vaunted as staying the course of senile cataract and as clearing it. It is doubtful whether any of them has the slightest effect; accounts of beneficial result are to be looked upon with suspicion. The bio-chemistry of the lens is still in an embryonic stage, and ætiology of senile cataract is still subjudice. This subject is one of the many in which it is difficult to maintain a true balance between the claims of new remedies, which may be of real therapeutic value or may be tinged with chicanery. To have any chance of success they must be tried in the early stages of the disease at a time when the patient may be unaware of any visual defect, apart from the need for glasses. Now, it is inadvisable to inform the patient of his condition at such a stage because (1) treatment is nearly certain to useless, (2) the condition may remain unchanged for many years, (3) the fear of impending blindness may cause needless prolonged depression. In cases where the diagnosis has to be declared, there can be no harm in trying some form of treatment, though a warning note should be sounded as to its probable inefficacy, and the prolonged period over which it must continue. Among the treatments given are the following:—(1) Solutions of potassium idodide in increasing strengths, used in any eye-bath for five or ten minutes several times a day. (2) Dor's ointment, "Calcic-alkaline-iodide," well-massaged into the conjunctiva twice daily. (3) Extract of parathyroid gland by the mouth, in doses of 1/10 gr. twice daily.

Lime Burns of the Eye.—Among industrial accidents to the eye lime burns of the cornea due as a rule to mortar or cement hold an important place, the resulting opacity being due not only to the actual destruction of corneal tissue but to the deposition of particles of insoluble calcium carbonate. A method of treatment founded upon the knowledge of this fact was recommended by Zur Nedden at the Heidelberg



Ophthalmological Congress in 1905, but although mentioned in Fuchs's, Romer's and Parson's text-books it does not appear to be generally known. Mr. E. Wolff, in the April number of the British Journal of Ophthalmology, in stating these facts gives details of two cases successfully treated, and tells us that the method is now in routine use both at the University College Hospital and at Moorfields. The method consists of daily irrigation for a period of 15 minutes with a solution of 10% neutral ammonium tartrate. By this means, the insoluble calcium carbonate is converted into the slightly more soluble calcium tartrate which is slowly washed away. In recent cases it is necessary thoroughly to cocainise the eye as a preliminary to treatment. In an acute case of this sort, in which vision was at first reduced to counting fingers, it was restored to normal after six weeks' treatment. In another patient who had already been treated for a month elsewhere the vision was improved from 6/60 to 6/12 after two months of the ammonium tartrate treatment. These successes should be noted by medical officers who work in industrial districts.

GYNÆCOLOGY.

Changes in Vomiting of Pregnancy.—A study made by Drennan and Hicks of four cases of pernicious vomiting of pregnancy shows the importance of estimating the percentage of ammonia nitrogen excretion in the urine, and the necessity for repeated examinations of this "ammonia co-efficient." In the toxic form, the ammonia excretion remains high, but may show marked fluctuations, even in spite of clinical improvement. The percentage of ammonia excretion—above the normal—gives little indication of the gravity of the case. One of the cases studied terminated in death, and a necropsy was performed. The injury, in toxic cases, affects the liver particularly, but the kidney may also suffer. The nature of the liver injury is a toxic necrosis affecting especially the central area of the lobule. The cause of the injury appears to be derived from the fœtal products, as removal of these leads to recovery and a return to normal of the ammonia excretion. There may, however, be prolonged after-effects of toxæmia. Too long a delay in removing the products of conception may lead to irreparable damage. The neurotic type of case shows no increase in ammonia excretion, or only a transient rise, which may be due to other factors than toxic injury to the liver.

BOOK REVIEWS.

MODERN VIEWS ON DIGESTION AND GASTRIC DISEASE.

By Hugh Maclean, M.D., D.Sc., M.R.C.P. [Modern Medical Monograph Series] 14 charts. 23 figures. 170 pages. 1925 [Constable & Company Ltd.,] 12 sh.

This work is, as the author puts it, an attempt to give a short and concise account of the present position of gastric physiology and pathology in relation to disease and treatment so as to be useful to the general practitioner. Giving a clear and concise idea of modern views regarding digestion, the author proceeds to give a systematic description of the chief gastric diseases and symptoms with their treatment. The chapters on "Fractional test meal" and the "Radiological examination of the Alimentary Canal" are very good and instructive. The X-Ray photos showing the "Duodenal cap", the "Penetration ulcers" and the "Filling defect" due to new growths are all very instructive. Special mention must be made of the chapter dealing with cancer of the stomach. The time-honoured ulcer-cancer controversy is discussed and professor Maclean from a study of more than 125 cases of cancer comes to the conclusion that gastric ulcer does not always occur in cancer. Regarding treatment, Prof. Maclean recommends the administration of large doses of alkalies for long periods and does not very much believe in the giving of pepsin, hydrochloric acid and the usual stomachics. He is of opinion that recourse should be had to surgery only in cases of cancer of the stomach and in ulcers where properly conducted medical treatment fails. The book, on the whole, is an excellent monograph and should be read by every one who has anything to do with gastric diseases.

A CLINICAL INDEX OF RADIUM THERAPY.

By A. E. Hayward Pinch, F. R. C. S. 1925. Pages 164. (The Radium Institute, London).

This excellent work is based upon 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 patient's case-sheets. The salient clinical facts that may be of help to establish the diagnosis and determine the advisability of radium treatment have been indicated briefly. Only absolutely essential facts of the physics of radium are given and unnecessary details have been avoided. Some important investigations by research workers concerning the action of radium on the normal tissues and organs is given in a summarised form. A perusal of this book shows the wide range of disease covered by and the great benefit likely to be derived from the radium treatment.

PHENALGIN

"The Logical Supplanter of Opium"

Phenalgin is a synthetic coal tar derivative of the amino benzine series in combination with ammonia. The ammonia is present in such a form as to be liberated in its nascent state on contact with the gastric secretions, thus acting as a diffusible stimulant and overcoming any tendency to cardiac or circulatory depression. Phenalgin has been prescribed for over twenty-five years by physicians throughout the world with unvarying success in the relief of pain of all kinds and from whatever source arising It is however in

DYSMENORRHOEA

that Phenalgin shows its most remarkable action This stubborn condition, which frequently remains obdurate under all other forms of treatment, will invariably yield to Phenalgin. Apart from its value in the relief of pain, Phenalgin, by its *vaso*-dilator action is also unusually efficacious in the relief of pyrexia and high nervous tension. In fevers, this action induces a gentle perspiration accompanied by a drop in temperature and freedom from restlessness and insomnia. It is therefore of particular value in

MALARIA
CEPHALALGIA
NEURALGIA
RHEUMATISM

INSOMNIA
MYALGIA
GOUT
LUMBAGO

ALCOHOLISM

As already stated, Phenalgin does not cause cardiac or circulatory depression, nor does it give rise to any sign of craving which might lead to the formation of a drug habit. By its prompt action lies in relieving pain and reducing pyrexia, together with its tranquilising influence on the higher nerve centres.

PHENALGIN
REPLACES
OPIUM OR
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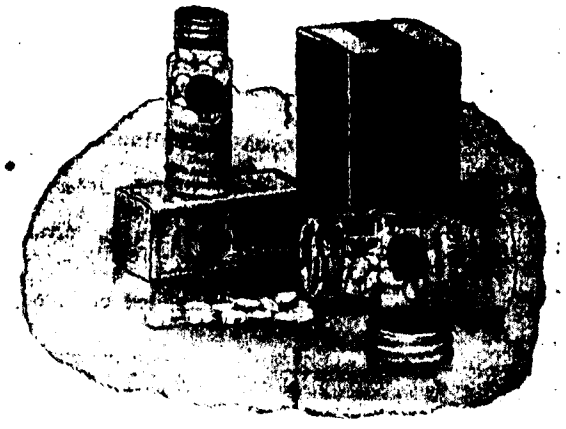

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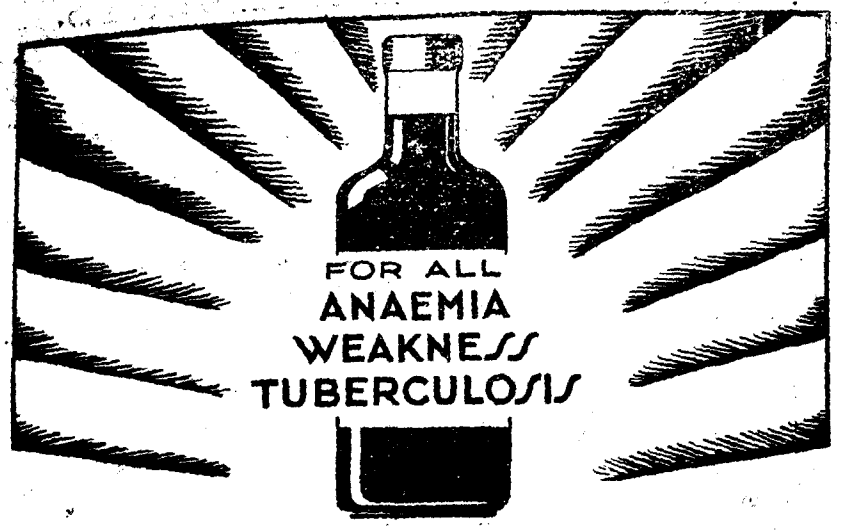

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