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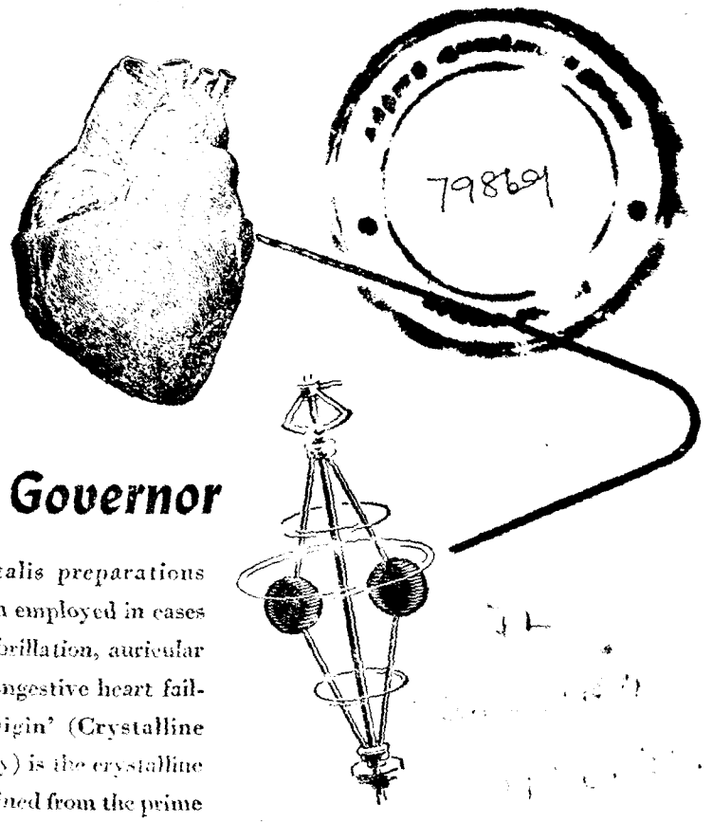

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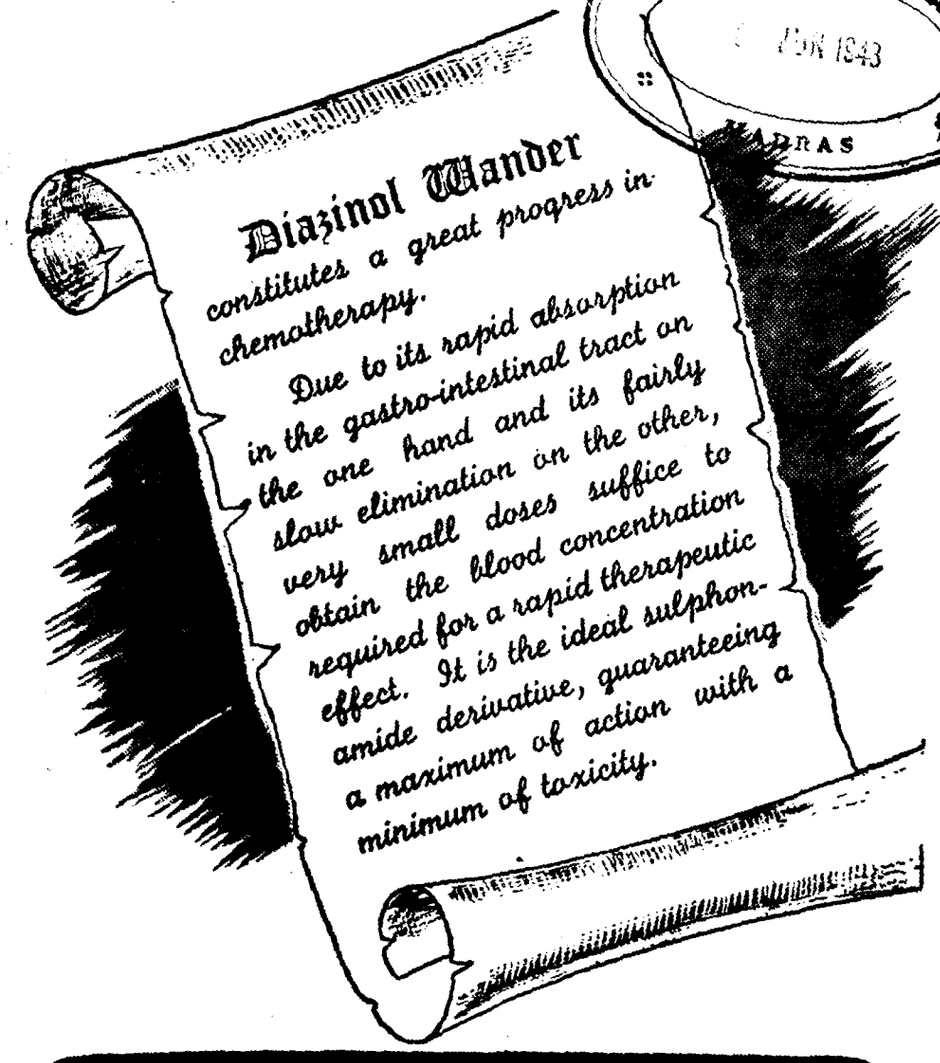

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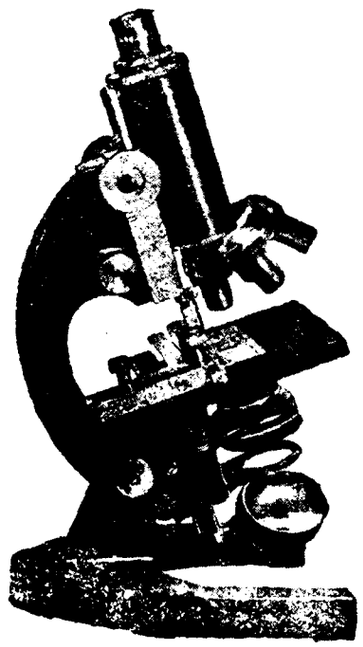

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Original Articles

Antibiotics*

With Special Reference to Penicillin

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THE knowledge of antibiotics is growing rapidly. These substances hold a definite promise of usefulness and importance in the therapeutics of the future. Hence it is essential that every medical man should remain acquainted with the nature of these substances and their present status in medicine. The aim of this paper is to present in a concise form the progress in the field of antibiotics, with special reference to Penicillin.

The study of antibiotics consists mainly of two periods, *viz.*:

I. The conception of antibiosis and its development. Subsequent use of antibiotics in medicine as antiseptics.

II. The use of antibiotics as chemotherapeutic agents.

The first period extends from 1889—1940, the second from 1940 onwards.

The term 'antibiosis' was first used by Vuillemin in 1889 to indicate substances or organisms which live in unrestricted opposition to the life of the other. Later Waksman used the word 'Antibiotic' for actual chemical substances involved in baoterial antagonism. Thus, antibiotics are substances elaborated by micro-organisms which act as anti-bacterial or anti-fungal agents. The term should be applied only to substances of natural origin and not to synthetic bactericidal drugs like the Sulphonamides.

In 1877, Pasteur and Joubert observed an interesting phenomenon in their laboratory. When air-bacteria contaminated anthrax cultures the

* Specially contributed to THE ANTISEPTIC.

growth of the latter was arrested. This is perhaps the first observation on the antibiotic phenomenon. In 1899, Emmerich and Low showed that from the culture medium on which B. pyocyaneus grew, a substance can be extracted, called Pyocyanase, which stopped the growth of a number of organisms like C. diphtheria, B. anthrax etc., and dissolved the cultures in vitro. From these and other experiments Babes predicted that 'a further and wider study of this reciprocal action of bacteria may lead to new ideas in therapeutics.'

Pyocyanase was the first anti-bacterial substance used in medicine. It was extensively used in the treatment of patients with diphtheria, anthrax, abscess, Vincent's angina, conjunctivitis, etc. In short, Pyocyanase was used at the time for as multifarious diseases as Penicillin is being used to-day.

In 1920, as the bacteriological work progressed, it was found that certain accidental contaminants of bacterial cultures had a remarkable inhibitory action on the growth of the cultures. Gratis and Dath found that a streptothrix was particularly active as an antagonist contaminant in a number of cases by its lytic action on the growth Animal experiments were made by Zukerman and Minkewitsch in 1925 with the extracts of an anti-bacterial contaminant of a culture of B. pseudodiphtheria. The antagonist substance was found to be incapable of affording protection to animals against diphtheria, though in vitro the experiment was a success.[1]

In 1929, Prof. Alexander Fleming discovered a contaminating mould which was lytic to certain pathogenic organisms. The mould was found to produce a substance which acted like an antiseptic. It was not toxic and had a marked antagonistic effect on bacterial growth. It was used for dressing septic wounds but without striking results.

In 1939, Dubos described the isolation of an active anti-biotic from soil bacillus, B. brevis. The active substance is Tyrothricine which can be separated in two crystalline parts *viz.*, Gramicidine and Tyrocidine. The first is active against gram-positive organisms locally though it is toxic parenterally. The discovery of Gramicidine was fated to be eclipsed by demonstration of Penicillin as a chemotherapeutic agent.

Penicillin.—The second period in the history of antibiotics began with the demonstration of Penicillin as a chemotherapeutic agent by a group of Oxford workers including Prof. Florey, Chain, Abraham and others. A chemotherapeutic agent differs from an antiseptic in that it selectively attacks the organisms causing the disease without at the same time doing any serious injury to the body. It can be administered orally or parenterally with safety. It was shown by the above workers (in 1940) that Penicillin is of so low a toxicity that it can be injected safely in even more than sufficient amounts necessary for therapeutic success. It cannot be given orally or rectally as it is easily destroyed by acid and bacterial enzymes. It is produced by the mould Penicillium notatum during its growth. Following pathogenic organisms are sensitive to it :—

Most cocci, gram-positive bacilli except B. tuberculosis and lepra, Claustrodia like Cl. welchii and Actinomyces.

Just before the discovery of Penicillin, Sulphonamides had established their reputation in the treatment of coccal infections in particular. But Penicillin is seen to have many advantages over the Sulpha drugs :—

(1) Antibacterial action of the Sulphonamides is lost in the presence of pus and products of tissue breakdown Penicillin is fully active under these circumstances.

(2) Penicillin is almost non-toxic in large therapeutic doses. It is not so with the Sulphonamides.

(3) Sulphonamides are less effective if many bacteria are present. Penicillin acts equally well with any number.

(4) Penicillin is highly diffusible.

(5) Penicillin can prevent the growth of sulpha-resistant organisms and *vice versa*.

(6) Penicillin can cause rapid death and lysis of susceptible organisms, while Sulphonamides act principally by slowing down the rate of growth.

(7) Penicillin has enormous antiseptic power even in million-fold dilution.

Mode of action.—Although Fleming's original observation was that Penicillin lysed bacteria, early workers emphasised that it was essentially bacteriostatic. Lately, however, its bactericidal and lytic properties have been widely recognised. Penicillin is now believed to have three phases to its action. It may be bacteriostatic, bactericidal or lytic according to conditions.

The assay of Penicillin is based on its bacteriostatic action on a Staphylococcal growth. Though Sulphonamides help its bacteriostatic action they are found to interfere with its killing and lytic action. The lytic action is particularly seen on dividing bacteria. It is suggestad that Penicillin may act by interfering with the utilization of the 'thiol' group by the growing cell.[2]

Two serious drawbacks of Penicillin are its instability at room temperature and rapid excretion. When made up in the form of solution it is stable for not more than 24 hours in cold storage. If a dose of 15,000 units is given intravenously it is excreted in an hour. With intramuscular injection it remains in the body for two hours. If a dose of 50,000 units is given, for rather more than four hours and if the dose is one lac units for six hours. Endeavours have been made to delay excretion by means of oil, and oil containing 5% beeswax. But with these preparations injections are troublesome.[3] Freezing the injected area by application of ice has also been known to delay excretion. Recently solvents for Penicillin like Pendil and Emulgen are sold separately for preparing water-in-oil emulsions of Penicillin to prolong its antibiotic effect. They are giving satisfactory results.

Penicillin may be given intraspinally but the general opinion is that the need for administration by this route rarely exists—if at all. It is believed that on rare occasions intrathecal Penicillin may be necessary where the organisms persist in the spinal fluid despite the clinical improvement of the patient. The possible toxicity of the drug when given intrathecally should not be overlooked. The important factors in the production of toxic complications are :[4]

1. *Concentration of Penicillin solution* :—This should not be more than 1,000 units per c.c.

2. *Size of individual dose*:—A single dose should not exceed 10,000 units.

3. *Frequency of injection*:—Once in 24 hours, for not more than three successive days.

4. *Slow diffusion*:—It is advisable to withdraw double the amount of C.S.F. before giving the injection which should be done slowly.

With all this it is advised that greater reliance may be placed on early treatment with maximum doses of parenterally injected Penicillin and that when possible intraspinal administration may be avoided.

The complications that are likely to appear as a result of intrathecal administration of Penicillin are adhesive spinal arechnoiditis, transverse myelopathy, intramedullary cavitation, convulsions, thrombosis of spinal veins, coma, hæmorrhage in the subarachnoid space and cyst formation producing spinal block at any level. Some of the complications can be dealt with surgically with sometimes residual paralysis.

Oral administration of Penicillin in the form of pastilles has been reported with success for oral infections. It has been found that the concentration in the mouth can be maintained by them. The pastilles can be preserved at least for a period of three months without deterioration or loss of efficiency of Penicillin. The mode of administration is of significance due to the finding of Garrod that the great majority of the numerous bacterial species found in the mouth are penicillin-sensitive with the result that the mixed and often predominantly anærobic infections due to bacteria derived from the mouth are amenable to Penicillin treatment. Such conditions are infection of tooth socket after extraction, of tonsilar bed after tonsillectomy, after compound fracture of jaw, acute hemolytic streptococcal infections of throat including scarlet fever. Vincent's gingivitis shows remarkable response.[5]

Penicillin has also been used as a spray for infections of upper respiratory tract. In septic conditions of the skin and serous cavities, its topical application has proved useful.

It is remarkable that the two principle forms of venereal disease—gonorrhœa and syphilis,—should prove amenable to Penicillin. To the 'warriors' it might even appear highly convenient in that 'two birds can be killed with one stone'. But it has been found that it is a grave drawback or even a veritable danger. Owing to the different times of appearance of the two diseases, it is possible that the treatment of gonorrhœa with Penicillin may suppress a coincident syphilitic infection with the result that the latter may remain neglected in its early phase. There are reports that the suppressed infection may become manifest later only after the delayed appearance of the secondary lesions. This serious possibility is perhaps an argument in favour of treating gonorrhœa initially with Sulphonamides and not with Penicillin.[6]

Erythema, urticaria and other skin reactions have been reported after injections of Penicillin. But they have never been so serious as to necessitate cessation of treatment.

There are a number of clinical conditions which respond almost miraculously to Penicillin treatment. Coccal pneumonia, meningitis, septicæmia and empyema are prominent amongst them. Penicillin has been used successfully in empyema by intrapleural instillation after aspiration of pus. Some diseases which resisted all treatment so far are showing signs of yielding to

Penicillin therapy to some extent. Subacute bacterial endocarditis and neurosyphilis are two of such intractable conditions Amœbic hepatitis when not amenable to Emetine responds to Penicillin favourably.

Use of Penicillin is compatible with other methods of treatment sometimes with advantage. Thus, Penicillin and Sulpha[7, 8] drugs have been used simultaneously with success in pneumonia and meningitis, Penicillin and Mapharside[9] have been used with greater success for eradication of syphilitic infection. Penicillin with malarial fever therapy[10] has been used with better results in neurosyphilis.

The successful combination of Penicillin in the treatments mentioned above suggested to the author the use of Penicillin in conjunction with the specific antimalarials in the treatment of relapsing malaria. The plasmodium is believed to be non-susceptible to Penicillin. But the author has found by experience that Penicillin has a synergic action on the specific antimalarials in suppressing the acute infection and a still more important independent action on the malarial cycle which results in the control of relapses particularly of the tertian infection The author explains the latter action by assuming that while Quinine and the synthetic antimalarials act on the parasites in the peripheral blood, Penicillin has action on the probable 'Pre erythrocytic stage' of the parasite in man, corresponding to the 'X' or the 'Reticuloendothelial' cycle in birds. Thus, while the specific anti-malarials clear the peripheral blood of parasites, Penicillin clears the lurking plasmodial infection from the mesenchymal tissue which perhaps acts as the reservoir of the parasites tending to bring on relapses by periodic expulsion of a number of them in the peripheral blood. Penicillin can do this in one or more of the following ways:—

(1) By anti-parasitic action on the 'pre-erythrocytic' stage of the parasite.

(2) By affecting the metabolism of the mesenchymal cells which lodge the parasites, thus making the 'lodging' unsuitable.

(3) By purging the parasites from the mesenchymal tissue in the peripheral blood where they are vulnerable to the action of the specific anti-malarial drugs.

Following cases will help to illustrate the usefulness of Penicillin in some of these conditions:—

Case 1.—A white male, aged about 42, was admitted to the Hospital for pain in the hepatic region and fever of 8 days' duration. He was admitted three times during the last two years for a similar complaint and had improved with injections of Emetine Hydrochloride each time. This time he had no relief with Emetine taken outside. On admission it was found that the liver was enlarged two fingers below the costal margin. The maximum rise of temperature in the evening was between 101°–103°F coming down with profuse perspiration. Stool examination did not show any cysts this time though on previous occasions they were present. Leucocytic count varied between 12–18 thousand per c mm. with Polymorphs 80–84% on different occasions. Radiological examination showed elevation of the right dome of diaphragm with markedly diminished movements. It obviously appeared to be a case of amœbic abscess. Four more injections of Emetine were given in the hospital without any effect. The liver was explored in various directions with a lumbar puncture needle and a syringe without being able to localise the abscess. Intensive courses with M & B (693) tablets, inj. of Soluseptasine, Dagenan, and Quinine were given in

addition to the usual supporting line of treatment with Glucose, Vitamins, etc. without any change in the condition of the patient for the better. All this treatment took about ten weeks and by this time the patient had gone very weak. Then we decided to try Penicillin. One lac units were given daily in three hourly injections for a period of 12 days without any effect on the temperature. On the thirteenth day the rise was smaller and from the fourteenth day onwards there was no rise at all. Penicillin was given for the next three days and then stopped. The patient continued to do well till his discharge one month later. Except a little anæmia his laboratory and X-ray findings were normal at the time of discharge. I learnt recently after about 18 months that he never had a relapse again and enjoyed uninterrupted good health, since his discharge.

Case 2.—A girl, aged 16, was receiving A.P. treatment for rightsided pulmonary tuberculosis. She had a serous pleural effusion after some refills, which was aspirated twice. After the second aspiration she began to get high temperature with shivering. Pleural sepsis was thought of and 300 c.c. of frank thick pus was aspirated. Two lac units of Penicillin in 6 c.c. of Saline were injected intrapleurally. Temperature came down on the next day and did not rise again. After a fortnight when the pleural cavity was again aspirated, clear yellowish fluid was obtained. The patient is doing well since for the last eight months.

Case 3.—A male, aged 25, came for recurrent attacks of malaria every few weeks, for the last six months. Every time the fever was checked by Quinine and Mepacrine. When he came under observation he had high fever and the blood film showed benign tertian infection. He was given inj. of Quinine gr. 6 intramuscularly on one buttock and two lac units of Penicillin in 6 c.c. Saline on the other buttock. Next day only inj. of Penicillin was given. Third day, inj. of Quinine and Penicillin were repeated as on the first day. Mepacrine tablets at one twice a day were given for the next five days. His temperature was checked from the second day of the treatment and did not relapse for the last ten weeks.

Other antibiotics like Streptomycine, Tyrothricine, Streptothricine are being explored for their clinical benefits and the crystallised results are being awaited. At the same time new fields of treatment for Penicillin are being searched. Thus it will be realised how much one member of the antibiotic group has influenced the modern therapeutics. As the research in antibiotics progresses, it will not be out of place to expect chemotherapeutic remedies for diseases like Tuberculosis and Leprosy which have remained unconquered so far.

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Jayashree, Deshmukhwadi,
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Need for Fresh Anti-Leprosy Legislation in India*

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The necessity for legal measures.—In the early days of prophylaxis against leprosy, compulsory isolation of cases of leprosy was advocated, but this attitude has of late undergone considerable change because of the difficulties in the successful use of compulsion for isolation. There are two main difficulties: firstly, it is not practicable in most countries where leprosy is prevalent to-day because of the limited financial resources, and the consequent limited accommodation for the patients, and secondly, compulsion leads to concealment of the disease and before the patient is detected and isolated, he would have infected a large number of healthy persons. It is, therefore, now generally recognised that the success of anti leprosy measures depends mostly on the willing co-operation of the patients and the general public.

Moreover, in India nearly all the leprosy institutions remain full to capacity and there is always a long waiting list of patients voluntarily seeking admission. In such circumstances there can be no point in advocating the use of compulsion for isolating cases of leprosy.

In general, therefore, the anti-leprosy work has to be carried on voluntary basis. However, there may arise special circumstances for the use of compulsion, and it is essential that legal provisions should exist to meet such special circumstances.

While contemplating the use of compulsion it is most essential to realise that compulsion should be confined to the infective cases of leprosy, there being no need or justification for its use in non-infective cases.

The existing legal powers.—In India legal powers for the control of leprosy are contained in the Lepers Act of 1898, the Railways Act of 1890, and the Local Self-Government Acts of the provinces.

The Indian Lepers Act of 1898 provides for (*a*) the segregation of pauper lepers, and (*b*) the control of lepers following certain occupations or doing certain acts such as (*i*) the preparation for sale or the sale of food, drink, drugs or clothing, (*ii*) taking drinking water from or bathing and washing clothes in the public wells and tanks, and (*iii*) the use of public vehicles, etc. This Act is a permissive Act which can be put into force in whole or in part by a notification by the local government.

Sections 47 and 71 of the Railways Act 1890 debar persons suffering from certain infectious diseases, including leprosy, from travelling in the same compartment with other persons.

The Local Self-Government Acts of the provinces provide powers for the control of notifiable infectious diseases, and wherever leprosy is a notifiable disease, these provisions apply to leprosy also. It is only in Madras that leprosy has recently been separated from the other notifiable diseases, and an exclusive provision has been made to deal with leprosy. In provinces other than Madras, the provisions of the Local Self-Government Acts for the control of notifiable infectious diseases including leprosy provide for the notification of the disease, removal of the patient to a

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hospital when he is living under conditions likely to favour the spread of the disease, disinfection of the infected articles and buildings, and prohibition from the use of public vehicles, and following certain occupations by the patients.

In Madras, leprosy has been excluded from the general group of infectious diseases, and provisions for it have been made in a separate part of the Health Act. For the purpose of the amended Act leprosy means "open" leprosy, *i.e.* that form of the disease in which the leprosy bacilli can be demonstrated from the mucous membrane of the patient's nose or from the skin by recognised standard methods of examination. One of the provisions of this Act is that an area where leprosy is an important endemic disease could be declared as an "area under segregation"; in areas declared as such, facilities shall be provided by local authorities for the isolation of the "open" cases. In these areas "open" cases, who persistently refuse to isolate themselves would be forced to do so in the centres provided for the purpose. The underlying principle for compulsion in the Act is that whereas compulsion unrelated to the availability of provision for isolation is not to be advocated, in areas where proper arrangements for isolation exist, open cases of leprosy, persistently refusing to isolate themselves, should be isolated under compulsion in the interest of the general population of the area.

The defects in the existing legal powers —Except in the case of the recent provisions in the Public Health Act of Madras, the one common defect of the existing legal powers for the control of leprosy is that they do not make any distinction between the infective and the non-infective cases of leprosy. This is a very serious defect since nearly three-fourths of the cases of leprosy in India are of the non-infective type for whom there is no need or justification for any legal action.

The Indian Lepers Act has additional defects. The provisions of this Act appear to be based on the assumption that leprosy is spread by indirect contact through clothes, water, food, etc., whereas we know that the most common mode of spread is the direct contact between the infectious cases and healthy individuals, specially children. Moreover, the Act deals mostly with the problem of leper beggars, while the leper beggar does not constitute a real problem from the public health point of view. It is the leper in the general population that constitutes a real problem from this point of view. The provisions of the Lepers Act have been applied only to a very limited area and the only sections in the Act notified have been those relating to the leper beggars. Even if the conditions were favourable to bring into force the Lepers Act in wider areas, we cannot expect to effectively control the spread of leprosy by these measures because of its defects explained above.

The provisions of the Local Self-Government Acts for dealing with the notifiable diseases appear to be adequate, specially in those provinces where they include powers to deal with even an infectious case living under conditions likely to spread the disease in his own family. These powers have, however, not been put into operation. These provisions are primarily meant to deal with cases of acute infections and the differences between acute infections and leprosy are so apparent, that it would be obvious that the legal powers designed to control acute infections cannot be and should not be applied in their entirety to the control of leprosy.

Another limitation of the Local Self-Government Acts is that in all the provinces, except Madras, these powers exist only in urban areas (Municipalities and notified areas), whereas leprosy is mostly a rural problem.

The need for enactment of a new legislation.—From a consideration of the above defects and limitations of the existing legal powers, the need for their amendment or else enactment of new legislation should be apparent. This has also been the considered opinion of the Special Committee appointed by the Central Advisory Board of Health to report on leprosy and its control in India. The Committee was of the view that the existing legal powers for the control of leprosy had not been of much practical value.

The enactment of a fresh comprehensive Act incorporating the existing and the projected legislation appears to be preferable to the modification of the various existing Acts. This is also the view of the Special Committee, which laid down certain principles on which such a legislation should be based.

The Central Advisory Board of Health at its 4th Meeting (1942) considered the recommendations of the Special Committee, and passed a resolution agreeing with these views, and recommending the preparation of a Model Leprosy Act. The Board endorsed the principles recommended by the Committee for this Act, with one exception. This exception refers to the principle regarding the notification of the cases of leprosy. The Committee had recommended that the notification should be confined to infective cases. The Board, although agreeing that legal action will be needed only in infective cases, recommended that the provision of notification should apply to all cases of leprosy irrespective of their infectivity. In its decision, the Board was guided by the consideration that it would be difficult for an ordinary medical man to differentiate between the infectious and the non-infectious cases. The Special Committee, on the other hand, in arriving at its recommendation had taken into consideration the following facts: (*a*) the number of cases of leprosy in the whole country is enormous, (*b*) a large proportion of these cases are non-infective, against whom there will be no necessity of taking any legal action, (*c*) a measure enforcing the notification of all the cases is likely to remain to a large extent a dead letter like the existing legal measures on notification, and (*d*) the demonstration of leprosy bacilli from smears from leprosy lesions is not a difficult matter.

As far as is known, no action has yet been taken on the matter by the Central Government on the recommendations of the Central Advisory Board of Health regarding the preparation of a Model Leprosy Act which could be recommended to the various provinces. While the other provincial governments have been awaiting for the preparation of such a Model Act, the Madras Government has already moved in this matter. In Madras, as in other provinces, leprosy was included amongst the other notifiable diseases in the original Public Health Act. This Act has however been amended *vide* Madras Act IV of 1944, and in the amended Act leprosy has been separated from the other notifiable diseases, and an exclusive and comprehensive provision to deal with leprosy has been made in a separate part of the Health Act. A reference has already been made to this earlier in this paper.

General principles for the proposed legislation.—It has already been stated that the provisions of the Local Self-Government Acts to deal with notifiable diseases are often adequate to deal with leprosy, but these

provisions have never been put into operation. These provisions, however, are meant primarily for acute infections, and cannot be applied in their entirety to the control of leprosy.

For enacting legal provisions possibly the best thing would be to take as a starting point the provisions of these Acts and to so modify them as to make them suitable for the control of leprosy. Of course, the very first thing would be to separate leprosy from the general group of infectious diseases and to make provisions separately for it. In drafting the Leprosy Act, the provisions of the Local Self-Government Acts suitable for leprosy control should be retained, while those not needed for it should be dropped, and other suitable provisions should be included. The scope of operation of the new Act should be extended to include rural as well as urban areas.

Some general principles on which the proposed legal Act should be based may be enunciated below :—

(1) The law should recognise the difference between the infective and the non-infective cases, and its provisions should apply only to the infective cases.

(2) The infective cases should be notifiable.

(3) There should be provision for isolation of infective cases, not only among beggars and uncared for people, but also amongst the general public.

(4) The legal powers should extend to the rural areas as well as to the urban areas.

(5) In highly endemic areas, to be notified from time to time, the powers should be mandatory and not merely permissive. In such areas it should be made obligatory on local administrative bodies to maintain places for isolation of the infective cases.

(6) The restriction on the use of public vehicles should be retained, but only for infective cases.

*(7) "Legislation should include powers for the Health Officers to examine cases who are supposed to be in an infective condition."

*(8) "Legal powers regarding the occupation of patients with leprosy detailed in the present Lepers Act, should be retained but for infective cases only."

*(9) "The powers of arrest and removal of a person who appears to be a pauper suffering from leprosy should be entrusted to the Health Authorities and the services of the police called in only when difficulty arises."

(10) Provision should be made for the control of immigration of cases of leprosy from adjoining countries.

Conclusions.—*In conclusion* it may be said that there is an urgent need for the preparation by the Central Government of a Model Act on Leprosy, which could then be recommended to the provincial governments.

The drafting of this Act should be entrusted to a Committee consisting of leprosy workers and public health administrators. The Committee should ascertain the views of workers throughout the country, preferably by sending out a questionnaire. The draft thus prepared should then be circulated to the provincial governments and selected individual workers, and the final draft should be prepared in the light of any criticisms received.

* From the "Report of Leprosy and its Control in India" of the Special Committee appointed by the Central Advisory Board of Health.

Some Recent Observations Made During the Treatment of Tumours of the Nose and Naso-Pharynx*

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THE problem as well as the subject of tumours of nose and naso-pharynx are rather big ones to be dealt with. I will try to deal with only the common conditions met with in every day practice.

Tumours of the nose and naso-pharynx are commonly classified into two main groups, i.e., benign and malignant.

I. Benign tumours in turn are again further subdivided as follows, according to the nature, vascularity, and consistency of the tumour. They are rare in the nose, naso-pharynx and sinuses. They are :—

(1) Papilloma (hard) (soft)
(2) Osteoma.
(3) Chondroma.
(4) Osteo Chondroma.
(5) Hæmangioma.
(6) Fibroma.
(7) Glioma.
(8) Mixed tumour.

Other rarer ones are lymphangioma, adenoma, lipoma, etc.

II. Similarly malignant tumours of the nose and naso-pharynx are further subdivided according to the nature, consistency and vascularity of the tumour as follows :—

They are more common in nose and naso-pharynx than the benign ones, in the ratio 2 : 1. They are :—

1. Naso pharyngeal fibroma.
2. Small round cell sarcoma.
3. Large round cell sarcoma.
4. Spindle cell sarcoma.
5. Giant cell sarcoma.
6. Squamous cell (epidermoid) carcinoma.
7. Basal cell carcinoma.

III. Chronic granuloma of nose and nasal accessory sinuses. These are tumours or tumour-like nodules, one made of granulation tissue, and the cause of these depends on the underlying disease, namely, the infecting organism etc. They are due to: (1) syphilis ; (2) tuberculosis; (3) lupus ; (4) actinomycosis ; (5) leprosy ; (6) trauma ; (7) pyogenic infection, etc.

Usually, patients come to the doctor for complaints of obstruction in the nose or unable to breathe freely through the nose or persistent headache on that side, etc. This headache is due to the interference in the drainage of the sinuses by the tumour pressing upon and closing the openings of the sinuses. They also complain of recurrent attacks of bleeding from the nose, as in case of sarcoma, angiomas, rhinosporidium, etc.

Hence with regard to the treatment of the above conditions relief depends upon the treatment of the underlying cause. The treatment of the benign tumours is removal by snare and then cauterisation of the base of the growth by galvano cautery to prevent further recurrence.

It is curious to note that some tumours which are and which appear to be benign in the early stages later on develop malignant changes, as is

* Specially contributed to THE ANTISEPTIC.

commonly seen in some tumours of chondroma which become chondro sarcoma, fibroma into fibroma sarcoma etc. Rhinosporidis (tumours which are locally malignant, and which are characterised by profuse bleeding, even on slight pressure, and which also offer considerable difficulty, by way of bleeding during removal, can also be classified as locally malignant tumours. They also cause considerable difficulty in breathing. During my experience as a specialist in the above hospital for a period of about 4 years, I had the opportunity of removing about six hundred benign growths from nose and naso-pharynx.

Coming to the treatment of malignant growths proper, one has to be very patient regarding the treatment of the case. Majority of them were removed by snare, some by scissors, and in all cases they were attended by severe and profuse hæmorrhages, both during and after the operation which were controlled by the usual hæmostatic measures like Gluconate 10% 10 c.c. I.V. Coagulen-siba 5 to 10 c.c. I.M., hæmostatic serum 2 c.c. I.M., sometimes by Pituitrin 1 c.c. subcutaneously. In these cases in addition to these measures, ice packing over the nose and neck were also applied immediately. In spite of complete removal there were recurrences which were also dealt with by removal and then cauterisation by galvano cautery after subjecting the patient to local or general anæsthesia as the case may be. In fact the ideal treatment in these cases would be to do diathermy cauterisation in those places from which the tumour arose under general anæsthesia, using pure chloroform only for the anæsthesia, since ether is highly inflammable. Some of the tumour cases after the removal had to undergo deep X-ray therapy to the part.

Some of the tumours not only occupy the nose and naso-pharynx but extend and occupy the maxillary antrum on the affected side and give a dense opacity in the X-ray film when they are radiographed. The proper thing in the treatment of these cases will be to deal with the tumours of the nose first, than that of the naso-pharynx, and then approach the maxillary antrum. As usual when the routine investigations are done in these cases nearly all of them give a negative Wassermann and Kahn tests. A certain percentage of these growths exhibit ulceration over the surface of the growth and produce a cauliflower-like growth. Now, of all these cases the following three cases are worth mentioning since they are very chronic, recurring after removal and cauterisation, and they are still under my treatment except the last one.

Case 1.—Patient X, a boy, aged 14 years, came to the out-patient department of the Erskine Hospital, Madura, on 8-10-'46 for difficulty in breathing through the right nostril with a tumour in the right nostril. Local examination revealed a globular mass reddish white in colour of a fairly hard consistency and a bit mobile. Right cheek was a bit bulging, tumour bled easily on pulling. All the usual investigations were done including blood for Kahn which was negative. Radiological examination revealed complete opacity in the right nostril and right maxillary antrum. Duration of the growth six months. History is that it began as a small nodule in the right nostril which gradually increased in size. As usual the routine tests like total R.B.C. count, W.B.C. count, differential count and H.B. percentage were done which are given below :—

R.B.C. 2·5 millions per c.mm.

W.B.C. 5800 per c.mm.

Differential count : Polymorph 68% ; Lymphocytes 24% ; Monocyte 2% ; Eosinophils 6%.

Blood : Kahn negative.

Urine : Sugar—nil.

Albumin—nil.

Since the general condition of the patient was poor, he was given one dozen injections of Liver Extract (2 c c. at a time I.M.) and 8 injections of Calcium Gluconate (each 10 c.c. 10%) I.V. After a month after admission, during which period the patient was given the above mentioned injections, besides Mist. Ferri et Ammonium Citrate 1 oz , three times a day, Pulvis Calcium Lactate 10 grains three times a day. An attempt was made to remove the tumour twice under local anæsthesia. At both sittings due to tremendous bleeding and the snare being unable to cut through and the patient evincing pain the attempt failed. In spite of ample local anæsthesia (Cotton wool well soaked in 2% Percain and Adrenalin solution and the nostril packed with such cotton wool), the patient could not bear the pain and fainted ; hence a third attempt at removal was made under general anæsthesia (Chloroform : ether 2:3 mixture), which resulted in removing a small mass for biopsy. The piece removed was fibrous in structure and consistency : there also, bleeding was a prominent feature which was controlled by the usual hæmostatic measures.

Hence, after a fortnight, about 50% of the growth was cauterised under general anæsthesia (using pure Choloroform only) by Galvano Cautery. The patient was left alone for a fortnight and then the remaining growth was also cauterised. Still about 25% of the tumour was found to remain in the nose, (might have grown again ?) and hence the patient was put on deep X-ray for about 2 months during which period he got 2 dozen exposures. Patient feeling much better and able to breathe through the right nostril was sent home with a notice to come back and report after 3 months. The Radiologist also asked to come and report after 3 months. He came after 3 months with the right nostril about half of it filled with the tumour again with complaints of difficulty in breathing. Biopsy report of the bit removed from the tumour revealed "Chondro Sarcoma," though for naked eye appearance it resembled a fibro sarcoma. The patient again got 2 dozen deep X-Ray exposures, but the tumour grew as usual and I am thinking of removing it by extra nasal route.

Case 2.—Patient Y, Hindu female, aged 30, was admitted in the E.N. T. Ward of the above Hospital on 12-12-'47 with swelling of the right cheek and a tumour completely filling the right nostril and pushing the septum towards the left. The tumour was a bit hard to touch bled easily and the patient complained of inability to breathe through the right nostril, and occasionally attacks of bleeding from the right nostril and headache on the right side. The tumour appeared as if it was wedged tightly within the right nostril, reddish white in colour practically immobile even when it was manipulated. As usual, the routine investigations revealed the following :—

Blood for Kahn—Negative.

R.B.C. 3.5 millions per c.mm.

W.B.C. 7800 per c.mm.

Differential count : Polymorph 65% ; Lymphocytes 26% ;
Monocyte 1% ; Eosinophils 8% ; H.B. 65%.
Urine : Sugar—nil.
Albumin—nil.

Radiological examination reveals opacity in right nostril, and right maxillary antrum. Boundaries of the maxillary antrum being hazy—suggestive of malignant tumour right nostril and antrum. X-ray report reveals erosion of the bony walls of the antrum. In this case there was not even enough space to do a diagnostic puncture of the right maxillary antrum. The growth was completely filling the whole of the right nostril As in the previous case, attempts to remove under local anæsthesia in 2 sittings proved futile due to tremendous bleeding, and the patient unable to bear the pain ; hence a third attempt under general anæsthesia brought out a bit of the tumour and it was sent for biopsy. Biopsy report is awaited. After a fortnight about 50% of the tumour was cauterised under general anæsthesia (C. 2 E. 3 mixture).

After this operation the patient had severe reaction, whole of the right side of the face was swollen and complete closure of the right eye, which got alright after a course of 5 lakhs of Penicillin and enough of Sulphonamide therapy. Then the right nostril had some space through which the patient was able to breathe to some extent. Now there being some space in the right nose, proof puncture of the right axillary antrum was done under local anæsthesia, which revealed some blood and pus and some granulation tissue in the discharge ; hence in the next sitting, the opening in the medial wall of the axillary antrum was enlarged, and through which the antrum was cureted nicely from the nostril, and enough of polypoid vegetations were removed. Again the patient developed severe reaction as before like high temperature, rapid pulse, severe pain, swelling of the face and eye-lids with closure of the eye etc. As usual she was put on massive doses of Penicillin, Sulphonamide etc., and she got alright.

Let me conclude by narrating another interesting case.

Case 3.—Patient Z, Hindu male, aged 35 years, referred to us for favour of admission and treatment from the American Mission Hospital, Madura. Patient was having profuse bleeding from a tumour in the left nostril whenever the tumour is touched ; hence the tumour was removed completely under local anæsthesia in two sittings and at the third sitting the area from which it arose and any remnants of the tumour here and there were cauterised under local by Galvano Cautery. At each sitting the attempt was followed by severe bleeding which was controlled as usual. Then the patient was discharged a week after the cauterisation. Now the patient is able to breathe freely through the left nostril and does not complain of any bleeding at any time. Biopsy report of the bit removed and sent from the tumour revealed "Capillary Angioma." Patient is instructed to report after a month.

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Trachoma*

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WITH the influx of refugees from the Punjab and N.W.F.P. into almost every part of India, the incidence of trachoma is increasing in those parts also where it was not so common. Trachoma so far was very common in the Punjab, N.W.F.P., western districts of U.P. and Baluchistan.

The consequences of trachoma are such that it cannot be dealt with lightly. Many useful eyes have been damaged beyond repair due to trachoma because of the ignorance of a general practitioner about the true nature of the disease. Every redness of the white of the eye is taken as common conjunctivitis and some drops are given for home use, while the disease slowly but certainly reaches a stage when it has done the greatest amount of mischief that it can possibly do. Owing to increasing incidence of the disease, I am dealing with it here thinking that it may be of some use for general practitioners.

Trachoma is a chronic contagious disease of the conjunctiva usually found in both eyes (rarely only one eye is affected) characterised by formation of granules in the conjunctiva and accompanied with pannus ultimately leading to cicatrisation of conjunctiva.

In early stages the patient usually complains of pain and watering of the eyes, feeling of foreign bodies in the eyes, photophobia and redness of the eyes. It is in this stage that we can expect much success by treating the disease on right lines.

In later stages of the disease the patients do not worry so much for the treatment of the disease itself and usually come for the treatment of the complications and sequelæ left by the disease, *viz.*, trachomatous pannus, corneal ulcers, ptosis, entropian defective vision, etc.

Similar to any other disease, in trachoma also when diagnosis is difficult the treatment is easy *i.e.*, in earlier cases and when diagnosis is easy with evident signs and symptoms, the treatment is difficult. In early stages on examination we usually find that there is mucopurulent discharge and the whole conjunctiva is conjested. It is due to a lowered vitality of trachomatous conjunctiva that it becomes an easy prey to other bacteria and acute conjunctivitis is superimposed. It is facilitated by rubbing the eyes, (which a trachoma patient always does.) The bacteria find the soil tilled and ready for infection. An inexperienced practitioner passes it as acute conjunctivitis and prescribes some drops for home use, the redness decreases, patient and practitioner both are happy, while the disease goes on increasing and there are recurrent attacks of similar superimposed conjunctivitis. On careful examination we find the follicles which cause the real trouble. These follicles are translucent and look like boiled sago grains. They usually commence in lower fornix but quickly appear in upper fornix also, they are not limited to the fornices as in follicular conjunctivitis, they form a row along the upper margin of the tarsus and thence invade the palpebral conjunctiva. They may be seen near caruncle and plica semilunaris. When seen on bulbar conjunctiva they are characteristic of trachoma. Besides granules we find trachomatous pannus and may see trachomatous corneal ulcers.

* Specially contributed to THE ANTISEPTIC.

In chronic cases we may see several stages of granules. They have assumed a larger shape (5 to 6 mm., in diameter), or cicatrisation has started, or the disease may have reached its natural termination having done the greatest mischief possible; we see the tarsal plate is cicatrised and hypertrophied with longitudinal bands of fibrous tissue known as Arlt's line. The sequelæ may be evident, *e.g.*, ptosis, entropian, trichiasis, pannus, corneal opacities.

The disease should be differentiated from other diseases in which we find follicles outstanding of which are follicular conjunctivitis and spring catarrh.

Trachoma	Follicular conjunctivitis	Spring catarrh
Nature of disease:—It is a chronic contagious disease of conjunctiva and cornea leading to cicatrisation.	This is a catarrhal inflammation of an infective nature with discrete follicles in lower fornix.	Seasonal recurrent bilateral conjunctivitis characterised by flat topped papules (cobble stone papules) on tarsal conjunctiva.
Site of follicle:—Lower and upper fornix, palpebral conjunctiva, present near caruncle and plica semilunaris.	Chiefly in lower fornix, frequently in upper lid near proximal border of tarsus specially at its angles, never on bulbar conjunctiva or near plica semilunaris.	Tarsal conjunctiva of upper lid, never in fornices, changes in lower lid are rare and slight.
Follicles:—Large follicles may be 5 to 6 mm in diameter, translucent, oval, red, appear like sago grains.	Small, pale, rounded or oval follicles 1 to 2 mm. in diameter, arranged in parallel rows.	Hypertrophied conjunctiva mapped out into polygonal raised areas, discrete or plumped together. A mosaic of flat papules like cobble stones or pavement appearance.
Course:—Very chronic, cicatrisation of conjunctiva always follows. Corneal pannus, ptosis, most characteristic.	Runs a long course of 1 to 2 years. Completely clears up. No complications or sequelæ.	Recurrence common during hot season. No complications or sequelæ unless of very long standing.

Complications.—*Pannus*:—Trachoma is almost invariably accompanied with pannus. The pannus of trachoma is very characteristic and cannot be mistaken for any other kind of vascularisation of the cornea. Almost the upper half of the cornea is affected which is covered by the upper lid. The the upper half of the cornea becomes hazy in advanced cases, the vessels are superficial lying between epithelium and the Bowman's membrane, afterwards the Bowman's membrane is destroyed and the opacity becomes permanent thus severely hindering the vision. The pannus may be progressive or regressive according to the stage of the disease. In very severe cases the whole cornea is vascularised, thus obscuring the vision completely.

Corneal ulcers:—Corneal ulcers when present are at the advancing edge of the pannus. There are several small shallow ulcers which cause much irritation, lachrymation and photophobia.

The pannus and ulcers jointly cause much distortion of the cornea, the eyes become highly and irregularly astigmatic. The vision in such eyes cannot be much improved by ordinary lenses and the vision becomes permanently blurred and defective.

Sequelæ.—*Trachomatous ptosis*:—Trachomatous ptosis is very characteristic and such a case can be diagnosed as that of trachoma from yards away. There is drooping of the upper lids which are thickened, it gives a sleepy appearance to the patient.

Entropian:—Because of the cicatrisation of the fibrous tissue, the edges of the lids are inverted and the eyelashes rub against the cornea (trichiasis) thus further damaging the cornea and causing much distress to the patient who always feels some foreign bodies pricking in the eyes.

Treatment.—*Preventive*:—Trachoma is a very contagious disease, several members of the same family or members of the same unit are found suffering from it, and as such care should be taken to protect the eyes of those who come in contact with trachoma patients. Trachoma patients should be instructed to use separate towels and other articles which come in contact with the eye. Practitioners treating such cases should wash their hands with soap and water or bathe the hands in Hydrarg Perchloride or Copper Sulphate solution.

Curative:—Treatment of trachoma is very lengthy and it requires lot of patience and perseverance on the part of the doctor and the patient.

As written before, we generally see cases of trachoma with superimposed conjunctivitis. In such cases conjunctivitis should be treated first, which consists of irrigating the conjunctival sac with Hydrarg Perchloride lotion 1 in 10,000 or Mag. Sulph solution 30 gr. to oz. 1. The conjunctival sac can be irrigated several times a day according to the severity of the disease and the amount of discharge. After irrigation Silver Nitrate drops 3 gr. to oz. 1 may be instilled and some soothing ointment like Boric ointment —Boric acid 30 gr. vaseline oz. 1, or Idoform ointment—Idoform 1 dr. vaseline 1 oz. may be applied. Administration of Sulpha group of drugs one tablet of ·5 gr. four times a day helps in relieving congestion early and at the same time pannus corneal ulcers are also much benefited.

Once conjunctivitis is treated, an intensive effort should be made to get rid of the follicles. Application of Silver Nitrate in increasing strengths even upto 50 gr. to 1 oz. has become very common, but not much benefit is derived by these strong solutions of Silver Nitrates. Copper Sulphate is of much more value in removing the granules than Silver Nirtate. The upper lid should be everted well and a subconjunctival injection of 2 to 4% of Novocaine given as touching of Copper Sulphate is very painful. A pointed Copper Sulphate stick should then be rubbed firmly over the everted lid, upper fornix should be approached and rubbed with the stick, care should be taken that the stick does not touch the cornea and the tears should be mopped off, lower lid should be painted similarly. This should be done once daily till all the granules are removed and should be continued for some weeks more. The subconjunctival injection of Novocaine can be given up after the first few days and the conjunctiva may be painted with Cocaine before touching the Copper Sulphate stick. After granules have been removed, Copper Sulphate drop—a ten per cent solution of Copper Sulphate in glycerine makes the stock solution. One part of the stock solution mixed with ten parts of water may be used twice or thrice daily. Copper Citrate drops—Copper Citrate 20 gr. Glycerine ½ oz., water ½ oz. may be used similarly. Touching of Copper Sulphate helps in decreasing the pannus, but it should not be touched when corneal ulcers are present and in these cases Silver Nitrate 10 gr. to 1 oz., should be painted on the lids till corneal

ulcers are cured. After touching Copper Sulphate or Silver Nitrate some soothing ointment or castor oil drops may be instilled in the eyes. Touching of Copper Sulphate though very efficacious is painful and some patients are not willing to take the treatment. Brushing of lids with Silver Nitrate is an alternative in such cases. It should be painted firmly over the everted lids, the eyes should be washed and some soothing drops *e. g.*, castor oil, cod liver oil or glycerine may be put in the eyes or Sulphanilamide ointment 5% applied to the lids. This should be done daily in the beginning, later two or three times a week. It should be continued for a long time even after the granules have been removed.

Sulpha group of drug should be started from the first day and must be continued for about a week, it helps to check the disease and relieves much suffering of the patient.

In the later stages of the disease and when follicles are enormous they have to be destroyed by mechanical means. Such cases and those with various complications and sequelæ should better be referred to the eye specialist as it is difficult to treat these cases on general lines.

Brucellosis in North Burma*

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BRUCELLOSIS (so named after Sir David Bruce who found out the causative organism in 1887) comprises a group of undulant fevers, of which two definite types have been well described in medical literature. The disease is one of low mortality of either subacute or chronic nature, often characterised by a series of febrile attacks of insidious onset, each attack after lasting one or more weeks, gradually subsides by lysis into a period of absolute or relative apyrexia of uncertain duration, associated with rheumatic like pains over the joints, profuse sweats, anæmia and orchitis, none of them constant. Remissions and relapses of the febrile attacks are a diagnostic feature of brucellosis. The two forms of undulant fever bear a distinct bacteriological label either as brucella meletensis or brucella abortus, in the latter of which there are the bovine and porcine strains and it is clinically reckoned as the milder of the two. The two forms of undulant fever cannot be clinically differentiated from one another, although bacteriological and serological (by agglutination-absorption tests) identification of the two causative organisms is always possible. The infective agent, a gram-negative bacillus is supposed to be ingested through infected cattle milk. Cases are on record where the causative organism has gained entry into human body through abrasions and in these cases ingestion of fresh milk was totally wanting.

The infective agent may also be conveyed through other foods and water.

When the disease was first described it was named 'Malta Fever' owing to its restricted prevalence round about the Mediterranean belt but it has now been credited with world wide spread and incidence. Reports reviewed for the last decade do not reveal of its incidence, either of meletensis or abortus types in Burma. There have been two cases of

* Specially contributed to THE ANTISEPTIC

brucellosis in Meiktila, one a Britisher and the other an Indian. The diagnosis was established on clinical findings confirmed by serological data. The case reports are briefly indicated below :

Case 1.—A British other rank 'C' was admitted to 49 I.G.H. for P.U.O. of 7 days' duration. (June '46).

Complaint :—Low grade fever, usually felt warm round about mid-day with profuse sweats, able to carry out daily routine of work. Pain over both the eyeballs. Bowels regular.

On examination :—A thin looking, sallow complexioned adult of about 20 years of age. Not toxic. He was ambulatory in the ward and assisted the ward sister. Eyes were not icteric and not injected. Glands were not palpable. The only positive physical sign was the palpable, soft and tender spleen. Temperature was of remittent type, the daily rise in temperature to 103°F usually noted at midday. Pulse : 100-110 per minute.

Investigations :—3 hourly thick drop blood smears revealed no malarial parasites.

Total W.B.C. : Ranged between 4 and 5 thousands per c.mm. during the febrile period with normal differential counts.

R.B.C. : 3,500,000 per c.mm. Hæmoglobin 11·2 G per 100 c.c.

Blood and urine culture carried out during the febrile period were sterile. No pathogens were isolated from stool cultures.

Serological findings for the febrile period are as follows :

Aldehyde and Chopra : negative.
Paul-Bunnel test : negative.
Cold agglutination test : negative.
Kahn : negative.
E.S.R. : 10 mm. 1st hour.
24 mm. 2nd hour.

	On admission	2nd week	3rd week	5th week	8th week
Widal TO ...	1/40	1/40	Nil	Nil	Nil
AO ...	Nil	Nil	Nil	Nil	Nil
Weil Felix OX2 ...	1/80	1/80	Nil	Nil	Nil
OXk	1/20	1/20	1/20	Nil	Nil
O X 19 ...	Nil	Nil	Nil	Nil	Nil
Brucella Meletensis ...	1/40	1/40	1/20	1/20	Nil
,, Abortus ...	1/40	1/160	1/640	1/640	1/1280

Skiagram of chest : Lung fields clear.

Towards the second week of illness the temperature ranged between 100°-103°F. During the early part of the 3rd week of illness the temperature settled down to normal and was symptom-free for 6 days. The fever and symptoms relapsed again and lasted for a week, after which period he was sent to Maymyo for convalescence.

Fifteen days later he was referred back to us for painful swelling of both the testes with low grade fever.

On examination:—Testes were swollen and tender. The spermatic cords were normal. No discharge per urethra. Prostatic smears were negative for gonococci. Agglutinins against Brucella abortus in 1 1280 was positive.

Diagnosis:—Brucella abortus.

A week later the pain and swelling of the testes subsided and was afebrile. He was evacuated to U.K.

Case 2.—An Indian other rank 'A' (Andhra) was admitted in June '46 to 49 I.G.H. for fever and joint pains of 5 days' duration.

On examination:—A well built adult of about 30 years of age. Not toxic, not icteric, conjunctiva injected.

Throat was congested.

The knee, elbow and wrist joints were tender but not swollen and no fluid present.

Spleen was palpable. Other systems: N.A.D.

Ran an intermittent type of temperature, the maximum (102 F) was reached by 1 p.m. each day. Pulse: 100–110 per minute.

Investigations:—3 hourly thick drop blood smears were negative for malarial parasites.

Total W.B.C.: 4,000 per c.mm. with a relative increase in lymphocytes.

Blood and urine cultures were sterile. No pathogens were isolated from stool cultures.

Sputum: No A.F.B. seen.

Skiagram chest: Lung fields clear.

Blood Kahn, Aldehyde and Chopra, Paul-Bunnel tests: negative

	On admission	Week later	Afebrile period
Widal TO ...	Nil	Nil	Nil
AO ...	Nil	Nil	Nil
Weil Felix OX2 ...	1/20	Nil	Nil
OXk ...	1/40	Nil	Nil
OX19 ...	Nil	Nil	Nil
Brucella Meletensis ...	1/20	1/40	Nil
,, Abortus ...	1/80	1/320	1/640

He ran intermittent temperature for 12 days, after which he was symptom-free and gained strength rapidly.

Diagnosis:—Brucella abortus.

Differential diagnosis:—The absence of malarial parasites and typical ague symptoms ruled out malaria. Failure to detect the causative agents for relapsing fevers in the blood excluded all types of relapsing fevers. Blood urine and stool cultures were negative to enteric group of fevers. Typhus fevers were excluded on clinical and serological data. Normal leucocyte counts and negative aldehyde and chopra tests were sufficient to rule out kala-azar and sternal puncture were intentionally not done. Absence of hectic temperature, usually rise in temperature at sunset, toxæmia and leucocytosis and no organism being isolated on blood cultures excluded septicæmia.

Absence of tonsillitis, rheumatic nodules, cardiac signs and a normal erythrocyte sedimentation rate ruled out rheumatic fever.

The characteristic midday rise in temperature, associated with no toxæmia, often ambulatory, but always typified by vague fleeting pains, the symptoms remitting only to relapses and confirmed by a rising titre of antibodies in serum against anyone of the Brucella antigens, makes diagnosis easy.

Remarks.—Two case notes of undulant fever caused by Brucella abortus are described. The diagnosis was entirely based on clinical findings, confirmed by serological data, although isolation of causative bacteria from blood culture is ideal, the latter procedure requires improved laboratory procedures and media. But it is seen from experience that a rising titre (1 640) against any one of Brucella antigens was only obtained in these two cases when over 2000 sera were routinely tested on patients admitted for P.U.O.

The mode and source of infection, it is difficult to say; though milk as a source could be excluded as the troops were entirely on tinned milk. It might have gained entry by either innoculation of abrasions or ingestion of other infected foods and water.

I am grateful to Capt. Hare, R.A M.C. for his help.

References:

1. Manson's Tropical Diseases, 1944. 2. J.A.M.A. 47 series.

Outlines of Medical Treatment in General Practice with Recent Advances*

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Rheumatism.—The word rheumatism is loosely used and includes all painful conditions as understood by a layman. It includes the following:

I. *Acute rheumatic fever*:—The clinical picture of acute rheumatic fever is described in detail in all medical books. Here an attempt has been made to bring forth important points in its treatment.

The principles underlying the treatment are: (1) To relieve pain and distress; (2) to control the activity of the causative agents; (3) to try to encourage the formation of natural defences of the body; (4) to guide the patient through a judicious but slow and sure convalescence. To achieve these, the treatment should be conducted on the following lines.

1. *Rest*:—This is very important and proper attention should be paid to it to prevent cardiac involvement and damage as acute rheumatic fever licks the joints and bites the heart. No hard and fast time limit can be laid down, though many clinicians advocate a minimum of three months'

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bed rest after even a mild attack. It is wiser to assume that the heart is affected by rheumatism in every case till time has proved one wrong. In all cases with clinical evidence of carditis bed rest should be prolonged so long as the signs of activity persist and this may extend over a period of many months. On the other hand, it is not desirable to prolong rest, once the signs of activity have disappeared. The cessation of activity is known from the return of the blood sedimentation rate to normal, gain in weight, stabilisation of the position of the apex beat and of physical signs in the heart and a stable pulse rate particularly that taken during sleep Moderate exercise, *e.g.* games, but no competitive sport, is beneficial for such person.

The room should have abundance of light and air, but direct draught of wind is undesirable. Clothes should be such as to absorb drenching perspiration which is a marked feature of the disease.

2. *Diet* :—The diet should consist of citrated milk. About ten grains of Pot. Citras. per glass, sweetened with sugar or glucose, every two to three hours is used. Thus about two seers of milk are given in twenty four hours. Fruit juice, whey etc., are also useful. Once the patient has improved he may be given soft boiled rice, bread, eggs, fish and vegetables.

Constipation :—This should be treated with Magsulph solution. A useful anti-rheumatic and anti-constipation preparation is :

℞	Pulvis Senna ...	tola 1
	Col Chicum (Suranjan) ...	tola ½
	Ginger (Sund) ...	tola ½
	Black Pepper (Kali Mirch) ...	25
	Cardamom (Illachi) ...	2
	Anise (Saunf) ...	tola ¼
	Fraxinus Excelsior (Shirkisht) ...	tola ½

Fiat Pulvis. Dose ʒ p—ʒ i at night with warm water, or gr. xx T.D.S.

Another useful prescription is :

℞	Aloes (Ario)	
	Senna	
	Colocynth Pulp	
	Col Chicum (Suranjan)	
	Chebulic (Harir) ...	aa

Mix in equal part. Fiat Pulvis Dose gr. xx T.D.S. in cachet or powder.

Specific treatment :—Sodium Salicylate is the specific drug at present. It is combined with alkalies to prevent cardiac complications. The following prescriptions have been used.

℞	Sodi Salicylas ...	gr. xv.
	Sodi Bicarb ...	gr. xxx.
	Ext Cascarasag ...	♏ xv.
	Tr. Belladonna ...	♏ iii.
	Syp Zengiberis ...	ʒ i.
	Aqua Chloroform ..	℥ i.

℞	Sodi Salicylas ...	gr. xv.
	Pot. Bicarb ...	gr. x.
	Tr. Hyocymus ...	♏ x.
	Spt. Ammoni Arom	♏ x.
	Aqua ad ...	℥ i.

℞	Sodi Salicylas ...	gr. xv.
	Pot. Acetas ...	gr. x.
	Tr. Cemcifuge ...	♏ x.
	Aqua ad ...	℥ i.

℞	Pot. Bromide ...	gr. v.
	Sodium Salicylas ...	gr. xv.
	Pot. Citras ...	gr. x.
	Sodi Bicarb ...	gr. xx.
	Spt. Chloroform ...	♏ x.
	Tr. Zengiberis ...	♏ v.
	Glycerine ...	♏ xx
	Aqua ad ...	℥ i.

Select any of the above prescriptions and prescribe it keeping in view the following points :

It is useless to give small doses Sod. Salicylas. The severe toxic symptoms which were and still are attributed to this drug have been due in the past to impurities and their presence is rarely noted to-day even when large doses are given provided the bowels are well open and that an adequate supply of alkali is given in conjunction with the Salicylate. To be effective the drug must be given in doses sufficient to produce the symptoms of mild Salicylate intoxication ; many so-called resistant cases are really due to under dosage.

The actual daily dose required to produce saturation with the drug will vary naturally with the age and weight of the patient. The guide to the dose in any individual case is clinical : the abolition of joint pains and of pyrexia, or the development of mild symptoms of salicism, tinnitus, deafness, etc. In general for an adult, doses of 20 to 30 grains two or three hourly will be required, a total of 200 gr. per day being commonly sufficient. In children the effective dose varies from 60 to 120 gr. per day according to age. The duration of Salicylate therapy on this scale of dosage is short. Once the fever and pain have subsided, or when symptoms of salicism have appeared, the dosage should be reduced considerably. This can generally be done within a few days at the most from the start of treatment. The drug should not, however, be entirely discontinued but should be administered in smaller doses so long as the rheumatic process is judged to remain active. The maintenance dose is that which will just suffice to keep pain and fever in abeyance and for an adult is generally from 100 to 120 gr. per day. Recurrence of acute symptoms is common when the maintenance dose is reduced as low as 60 gr. per day. Should such recurrence occur, the dose must be temporarily increased.

The Salicylate therapy is the specific and standard line of treatment for acute rheumatism. Unless some one is sensitive to Salicylate, other medicines should not be prescribed. But idiosyncrasy to the drug is rare. In such cases Aspiran or Quinine Salicylate may be given.

Local application :—Two applications to the inflamed joints in this disease are suggested by Dr. P. K. Banerjee. These are saturated solution of Magnesium Sulphate with or without Tr. Opii and the following :

℞	Pot. Bicarb ...	℥ ss.
	Tr. Opii ...	ʒ i—iv.
	Glycerine ...	℥ ii.
	Aqua Rosoe ad ...	℥ xii.

Both of these lotions should be applied warm, soaken in a piece of lint. The following liniment and ointment are also useful.

℞	Sodii Bicarb ...	gr. xx.
	Ol. Gaultheria ...	ʒ i.
	Camphor ...	ʒ i.
	Liq. Ammoni Fort ...	ʒ i.
	Menthol ...	gr. x.
	Iodine Crystals ...	gr. x.
	Tr. Capsicum ...	♏ xv.
	Oil Sinapis ad ...	℥ i.

For local use (Dhar).

℞	Acid Salicylic ...	ʒ p.
	Menthol ...	gr. x.
	Oil Cajuputi ...	♏ iv.
	Oil Gaultheria ...	♏ xxx.
	Ol. Tarbenthinæ ...	ʒ i.
	Vaseline ...	ʒ ii.

For local application.

Sulphonamide group of drugs:—The results with Sulphonamide group of drugs are disappointing. It has no effect on the course of rheumatic process, though several physicians prescribe it unknowingly as a routine. The only indication for its use is acute tonsillitis which is common in the rheumatics. The following prescription is also excellent in the *treatment* of acute tonsillitis in a rheumatic:

℞ Sodi Salicylas ... gr. xxx.
Pot. Chloras ... gr. xv.
Tr. Guaiac Ammon ... ʒ iii.
Mucilage ... q.s.
Aqua ad ... ℥ iii.
ʒ i. every four hours.

But Sulphanilamide has preventive and prophylactic action on relapses in rheumatic children. A report from United States Office of War Information gives out that experiment carried at Irvington House, New York, justifies such use. Smaller doses are advocated to be given during winter.

Penicillin:—This wonder drug has no effect on acute rheumatic fever.

Convalescence:—The importance of rest has been sufficiently discussed. Therefore convalescence has got to be very much prolonged because of the risk of an easy relapse even when the patient is cured completely. Ferri et Ammoni Citras should be given to treat anæmia and injections of Liver Extract may be given to accelerate blood regeneration. Besides this, good food, prevention of constipation, milk, eggs, fruit, butter, vitamin B and C, help in quick recovery.

It will not be out of place here to draw attention to a controversial point regarding the use of Salicylate in the treatment of rheumatic carditis. While most authorities are in favour of pushing it in large doses, there are a few notable opponents to this. In fact lack of adequate dose of Sodi Salicylate predisposes to endocarditis. Whereas Dr. Poynton says "Long experience with the Salicylates had led me to great disappointment as to their specific effects and led me to believe that pushed in large doses, they may do much harm by causing vomiting, depression etc. The practice of covering it with twice the dose of Soda Bicarb adds to the depressive effect." He recommends the use of "Tolisin" *i.e.*, Para Methyl Phenyl Cinchoninic acid Ethyl Ester in gr. x—xv doses. This is claimed to be an efficient anti-rheumatic and will not depress the heart or damage the kidneys. Upto gr. 750 have been given in eight days without any untoward symptoms.

Atoquinol (Ciba) is the Allyl Ester of Phenyl Cinchoninic acid and the tablets may be prescribed as anti-pyretic and anti-rheumatic instead of Salicylates. Similarly Matizin (C.D.C.) injections are also useful.

Fibrositis, neuralgia, myalgia and arthritis.—The inflammation of white fibrous tissue is associated with pains of different kinds White fibrous tissue is found practically in all parts of the body. So-called arthritis, muscular rheumatism or myalgia, neuralgia or sciatica, brachialgia etc., are all one and the same disease, the only real difference between them being the anatomical situation of the fibrous tissue which is attacked by the inflammation and gives rise to the condition called fibrositis.

The causes of fibrositis are.—(1) Absorption of toxins from the intestinal tract due to defective metabolism from the too free ingestion of meat foods

and alcoholic drinks, or their inadequate elimination; (2) persistent muscular fatigue; (3) toxic states arising from: gout, rheumatism, diabetes, influenza, syphilis, malaria, etc.: (4) herpes zoster, anæmia and vitamin deficiencies give rise to various forms of painful conditions.

Treatment.—1. Pain is the prominent symptom of neuralgia, myalgia and arthritis. Having opened bowels with a dose of Magsulph, prescribe any of the following medicines according to the need of the patient.

℞ Pot Bromide ... gr. xxx
Sodi Salicylas ... gr. xxx
Sodi Bicarb ... gr. xxx
Spt Ammoni ... ʒ p
Aqua ad ... ℥ iii
ʒ i. T.D.S.

℞ *Phenactin* ... gr. v
Caffeine Citr ... gr. i
Camphor Monobrom. gr. ii
Fiat Pulvis 1. One T.D.S.

℞ *Sodi Salicylas* ... gr. x
Antipyrine ... gr. v
Sodi Bicarb ... gr. x
Syp *Zengiberis* ... ʒp
Aqua ad ... ℥ *i*
One ounce every two hours up to four doses.

℞ Pot Bromide ... ʒ p
Sodi Salicylas ... ʒ p
Veramon ... gr. xii
Sodium Gardenal ... gr. iii
Tr Belladonna ... ♏ xii
Syp Aurauti ... ʒ iii
Aqua ad ... ℥ iii
ʒ i. T.D.S.

℞ *Ammoni* Bromide ... ʒ p
Sodi Salicylas ... ʒ p
Antipyrine ... gr. xv
Tr Gelsemi ... ♏ xx
Aqua ad ... ℥ iii
ʒ i. T.D.S.

℞ Aspirin ... gr. x
Phenactin ... gr. x
Caffein Citr ... gr. ii
Fiat in 3 Pds. One as required.

℞ Sodi Salicylas ... gr. v
Phenactin ... gr. v
Sodi Bicarb ... gr. v
Caffeina ... gr. *i*
Ft. Pulvis 1. One T.D.S.

Various other analgesics are available in the market, *viz.*, Cibalgin, Codopyrin (Glaxo), Veramon, Sonalgin (M. & B.), Allonol (Roche), Saridon (Roche), etc., and these may be prescribed alone or in combination with other drugs as:

℞ Veramon ... gr. v
Medinal ... gr. iv
Luminal ... gr. i
Saridon ... gr. v
Sugar of milk ... gr. xx
One Pd. Every six to eight hours or as required.

℞ Cibalgin ... 2
Dial ... gr. ii
Aspirin ... gr. viii
Divide in 3 Pds. One as required.

℞ Saridon ... 1 tab.
Phenactin ... gr. x
Sedormid (Roche) ... 2 tab.
Divide in 3 Pds. One as required.

℞ Allonol ... 1
Phenactin ... gr. viii
Gardenal ... gr. ii
in 3 Pds. One as required.

Note.—Veramon contains Amidopyrine and Phenobarbitone; Cibalgin contains Amidopyrine and Dial; Allonol (*Roche*) contains Barbiturate and Phenactin; Codopyrine contains Codiena + Phenactin + Aspirin.
All the above prescriptions relieve pain and hence act as analgesics.

2. Preparations of Opium or Morphia, through analgesics, are to be avoided as they are habit forming. If ever used, these may be prescribed as follows: Injection of Morphia or Omnopon with or without Atropine. Also in any one of the following forms:

℞ Morphia Sulph ... gr. ¼
Chloral Hydras ... gr. x
Aqua Cinnamon ... ʒ i
ʒ i to be repeated every three hours till relieved of pain.

℞ Dionin ... gr. i
Sodi Bromide ... gr. xxx
Aqua ad ... ʒ iii
ʒ i. As required.

℞ Heroin Hydrochlor ... gr. 1/12
Acid Hydrobromic dil. ... ♏ xxx
Caffein Citr ... gr. v
Tr Cardamon Co ... ♏ xx
Aqua Chloroform ... ʒ i
ʒ i. Every two hours for three doses.

℞ Sodi Salicylas ... ʒ p
Pot Acetas ... ʒ p
Liq Morphia Bimecon ... ʒ p
Tr Cemcifuge ... ʒ p
Aqua ad ... ʒ iii
ʒ i. T.D.S.

3. *Pot Iodide*:—Pot Iodide is an excellent remedy in the treatment of neuralgia, etc., and should be added with due consideration to incompatibility, to any of the above prescriptions. It is useful in patients showing high arterial tension, or gouty state, or where the condition is of syphilitic origin, or when neuralgia tends to become chronic and ordinary medicines fail. It may be given in the form of Pot Iodide gr. x with Sodi Salicylas gr. x in 2 c.c. distilled water in ampoule form by Alembic of Baroda. The ampoule is broken and the solution is mixed with 10 c.c. of distilled water which is injected intravenously. This injection is useful in acute rheumatism, neuralgia, myalgia and arthritis. Pot Iodide may be given orally as:

℞ Pot Iodide ... gr. xii
Sodi Salicylas ... gr. xxx
Pot Acetas ... gr. xx
Spt Ammoni ... ʒ p
Aqua ad ... ʒ iii
ʒ i. T.D.S.

Add Liq Hydrarg Perchlor ʒp to the above mixture when the case is of syphilitic origin. Also see below.

4. *Anaemia*:—Anæmic cases also complain of various kinds of pains. Here Salicylates are a failure and iron with suitable diet is the proper drug to be prescribed as:

℞ Ferri et Ammoni Citr ... gr. x
Liq Arsenic ... ♏ ii
Aqua ad ... ʒ i
ʒ i. T.D.S. after food.

℞ Ferri Quinine Citr ... gr. xx
Liq Arsenic ... ♏ v
Tr Nux Vomica ... ♏ iv
Aqua ad ... ʒ i
ʒ i. T.D.S.

Injections of Liver Extract and Vitamin B Complex are excellent.

5. *Quinine* as an analgesic:—In neuralgias of malarial origin or those depending upon defective nutrition Quinine acts as an excellent analgesic and may be prescribed in the following form:

℞ Quinine Sulph ... gr. v
Acid Hydro Brom dil ... ♏ xxx
Ammoni Bromide ... ʒ p
Tr Gelsemi ... ♏ xxx
Aqa ad ... ʒ iii
ʒ i. T.D.S.

℞ Quinine Sulph ... gr. ii
Morphine Sulph ... gr. 1/20
Strychnine Sulph ... gr. 1/30
Arsenious Acid ... gr. 1/120
Ext Aconite ... gr. ½
Fiat Capsule one. One T.D.S.

6. *Ammonium Chloride*:—This is useful for the vague, ill-defined neuralgic and 'rheumaticky' pains. It is prescribed as:

℞ Ammoni Chloride ... gr. xx
Tr Cemcifuge ... ♏ xx
Aqua ad ... ʒ i
ʒ i. T.D S.

℞ Ammoni Chloride ... gr.xxx
Ferri Quinine Citr ... gr. xii
Tr Aconite ... ♏ xv
Tr Auranti ... ♏ xxx
Aqua ad ... ʒ iii
ʒ i. T.D.S.

℞ Ammoni Chloride ... gr. xxx
Antipyrine ... gr. xv
Ammoni Carb ... gr. vi
Tr Auranti ... ʒ p
Aqua ad ... ʒ iii
ʒ i. T.D.S.

℞ Pot Bromide ... ʒ p
Ammoni Chloride ... ʒ p
Sodi Salicylas ... ʒ p
Antipyrine ... gr. xv
Spt Chloroform ... ʒ p
Aqua ad ... ʒ iii

7. *Antifebrin or Acetanilid*:—This is one of the most valuable drugs for the relief of neuralgic and neuritic pains. It should be prescribed in small doses, as large doses have caused cynosis and dusky red colour of lips and nails. Due to this reaction several physicians are afraid to use the drug. When properly employed, it is no more dangerous than any of the numerous drugs prescribed daily. It is better to begin with two grains three times a day and the dose may be gradually increased to five grains T.D.S. It may be prescribed as:

℞ Acetanilidum ... gr. ii
Caffein Citras ... gr. ii
Fiat pulvis one. One T.D.S.

℞ Sodi Salicylas ... gr. x
Antifebrin ... gr. ii
Camphor Monobran ... gr. ii
Morphia Sulph ... gr. 1/20
Fiat Pulvis one. One T.D.S.

8. *Butyl Chloral Hydras*:—This drug is said to be useful for facial neuralgia. To be of any use, a carious tooth or irritated pulp of a sound tooth which is the usual cause of such a neuralgia, should be found out and treated accordingly. Butyl Chloral Hydras is also useful for *migraine*. It is prescribed in the following form:

℞ Butyl Chloral Hydras ... gr. xv
Ammoni Bromide ... gr. xxx.
Tr Gelsemi ... ♏ xv
Tr Auranti ... ʒ p
Liq Morphia ... ♏ xv
Antifebrin ... gr. vi
Mucilage ... q.s.
Aqua ad ... ʒ iii
ʒ i T.D S.

℞ Butyl Chloral Hydras ... gr. v

℞ Butyl Chloras Hydras ... gr v
Gelsemin Hydrochlor ... gr. 1/100
Caffein ... gr. i
Quinine Sulph ... gr. i
Fiat 1 powder. One T.D.S.

℞ Butyl Chloral Hydras ... gr. v.
Gelsemine ... gr. 1/200
Fiat Pulvis 1. Three times a day.

9. *Pulvis* antimonialis or James powder gr. v. T D.S. is said to be specific for lumbago.

10. *Belladonna* is good in neuralgia of neurotic women arising from ovarian irritability.

11. *Prostigmin* (Roche):—This drug is excellent where spasm of the involved muscles is the marked feature. It is often combined with Morphia or Omnopon (Roche), or Atropine or Bellafoline (Sandoz). Thus it is useful in rheumatoid arthritis, lumbago and cramps. It is reported of value in trigeminal and other neuralgias.

12. *Nicotinic acid*:—This drug acts as a vaso dilator. Neuralgias of ischæmic origin are cured by it. Since ischæmia is present in nearly all forms of neuralgias, Nicotinic Acid should be used more frequently in doses of 50–75 mg. per day. Pelonin (Glaxo), Niconin (Alembic) are good preparations.

13. *Vitamin B*:—This is prescribed in all forms of pains. But its use should be limited to clear cut cases of Vit. B deficiency. Berin (Glaxo), Vit. B Complex (T.C.F.) may be prescribed. Six to ten injections have cured neuralgias of various types.

14. *Vitamin E*:—Steinberg writes that primary fibrositis is uncommon in young people but common in the fifth decade, being equally divided between the sexes. It is characterised clinically by severe pain, localised or generalized areas of tenderness, spasm, and stiffness. Drafts and cold, damp weather definitely aggravate the condition or initiate an attack; warm weather or application of local heat brings relief. This primary fibrositis is a metabolic disorder concerned with deprivation of vitamin E. The dosage recommended is 300 mg. of Vit. E daily for the first week, 150 mgs. daily for the next two weeks, and 100 mgs. daily as a maintenance dose. There is marked clinical improvement. Ephynal (Roche) may be prescribed.

15. *T. A. B. Vaccine*:—T. A. B. Vaccine has been used with excellent results in rheumatism of known or unknown, specific or nonspecific origin. It is also excellent for gonorrhœal arthritis. 0·25 cc. of T.A.B. Vaccine is mixed with 5 cc. of Normal Saline and injected intravenously.

Such three to four injections are given at an interval of four days, the dose being increased by 0·25 cc. at each injection. The very first injection shows remarkable result. There is a rise of temperature and symptoms of shock, vomiting, diarrhœa and urticaria may develop after an injection. These subside of their own accord and need not cause anxiety. (THE ANTISEPTIC, 1945, pp. 251, 455).

16. *Sulphur*:—Many physicians are of opinion that Sulphur is of undoubted value in the treatment of the chronic rheumatic diseases. It is given orally in the form of Collosol Sulphur ʒ i—ii T.D.S. after food. Lord Anson paid three hundred pounds for the privilege of publishing the following combination of Sulphur.

℞ Sulphur	...	ʒ ii.
Cream of Tartar	...	ʒ i.
Rhubarb	...	ʒ ii.
Guaicum Powder	...	ʒ i.
Nutmeg	...	1.
Honey Ad	...	ʒ xvi.

Mix well and take two teaspoonfuls in a tumbler of hot water on going to bed and repeat the dose on getting up in the morning.

Sulphur by injection is used for the production of pyrexia and thus employed its action is entirely nonspecific. The reaction produced is relatively mild and less exhausting to debilitated patients than that produced by the intravenous injection of T.A.B. vaccine. Collosal Sulphur, Colsul (British colloids) or Sulfoil (Cipla) may be employed for this purpose. It is often combined with milk as in Pyrolactin D (Research Products).

17. *Gold*:—This is useful in rheumatoid arthritis and T.B. of the spine. In the latter condition, the writer remembers a case, where pain was so severe that the patient had to take Codopyrine tablets several times daily. The case could not be diagnosed by eminent physicians and surgeons who treated it as a case of neuralgia of an unknown etiology, till at last some one said that it was the case of T. B. Spine. Gold in the form of Myocrisin (M. & B) was given and all the pains disappeared. Now the patient gets two courses in a year. For the last six years she has been getting Gold regularly and keeps good health. Gold is also excellent in rheumatoid arthritis. It should be given with due care to reactions. Myocrisin (M. & B.) may be employed.

18. *Liq*: *Maha Rasnadi Quath* (Zandu):—This preparation is also an anti-rheumatic of value. The writer prescribed it to a doctor who was in the habit of taking Aspirin for his rheumatoid arthritis. His opinion is that it has the same effect as Aspirin which he does not take at present. The writer combines it with Salicylates and prescribes it regularly in neuralgias and fibrositis.

℞ Pot Bromide	...	ʒ p.
Sodi Salicylas	...	ʒ p.
Pot Citras	...	ʒ p.
Antipyrine	...	gr. xv.
Liq. Maha R. Q.	...	ʒ iii.
Spt. Chloroform	...	ʒ p.
Aqua ad	...	℥ iii.

ʒ i. T.D.S.

19. *Guggul*:—Guggul is another preparation used by the writer. It can be prescribed in pill form as Mahayograj Guggul (Zandu).

20. *Col Chicum* is useful for gout.

℞ Pot Citras	...	ʒ p.
Tr. Guaic Ammoni	...	ʒ i.
Lithi Citras	...	gr. x.
Vin Colchici	...	♏ xxx.
Aqua ad	...	℥ iii.

ʒ i. T.D.S.

The Cinchophen group of drugs *e. g.*, Atophan is also useful.

21. All septic and inflammatory conditions are associated with pains. Sulphonamides and Penicillin are specific here. Intra-articular injections of Penicillin have given good results in septic arthritis. Gonococcal arthritis is cured by Penicillin injections.

22. Injections of air, alcohol and novocaine have been given directly in the nerves and muscles.

23. Syphilis and diabetes require proper treatment.

Local applications.—Use any of the liniments given under acute rheumatism. The following applications are also good.

℞ Lint Aconite		℞ Menthol	... gr. x.
Lint Belladonna		Alcohol	... ℥ i.
Lint Chloroform			
Lint Menthol ää	... ʒ ii.		

℞	Chloroform		℞	Chloral Hydras	
	Tr. Aconite āā	... ℥ ii.		Camphor āā	... ℥ ii.
	Lint Saponis	... ℥ iii.			
℞	Tr. Aconite	... ℥ i.	℞	Ol. Cinnamon	... ♏ x.
	Camphor	... ℥ ii.		Ol. Gaultheria	... ℥ i.
	Chloroform	... ℥ ii.		Menthol	... ℥ i.
	Menthol	... ℥ ii.		Camphor	... ℥ i.
	Eu de Cologne	... ℥ vi.		Eu de Cologne	... ℥ ii.

Apply with a pencil of cotton over the painful part.

Local application of Sal Adrenaline (1–1000) along the course of the nerve affords ready relief when other medicines have failed.

Repeated blistering is also useful.

Leeching:—It is indicated in full-blooded individuals in whom pain seems to be in, or to radiate from, the ear. A leech placed behind the ear and allowed to take its full quantity of blood will often give complete relief where other means have failed.

Headache and Migraine.—MIGRAINE—*Treatment during an attack*: The patient should be made to retire in bed in a quiet dark room free from noise and bright light. Bowels should be opened by a dose of Magsulph. An analgesic mixture containing Bromide, Antipyrine, Sodi Salicylas and Tr. Gelsemi should be given by mouth. Butyl Chloral Hydras mixture is also useful.

Injection of Adrenalin or Ephedrine may produce striking improvement. Ephedrine may be prescribed orally in the following form:—

℞	Ephedrine	... gr. i.
	Aspirin	... gr. xv.
	Cal Lactas	... gr. xx.

Fiat pulvis 3. One every three hours.

But the drug of choice is Ergotamine Tartrate. It is put in ½ c.c. ampoules by Sandoz under the name of Gynergen. ½ c.c. Gynergen is mixed with ½ c.c. of Bellafoline and injected intramuscularly or subcutaneuosly. Given by injection Gynergen relieves migraine seizures in 90% of the cases. Gynergen causes vomiting which is not of serious nature. Patient may be warned beforehand. Gynergen is contra-indicated in pregnant women because it induces uterine contraction.

Interval treatment:—To prevent an attack the following medicines may be used.

(1) Gardenal (M. & B.): gr. ½–1½ twice daily.

(2) Gynergen Tablets (Sandoz): Sublingual administration of tablets (2–4) will prevent an attack.

(3) Bellergal (Sandoz), Bellafoline, Gynergen, Phenobarbitone: 1 tablet three times a day.

(4) Micapon Tablets (P. D.)

(5) Thyroid Extract.

(6) Gower's mixture.

℞	Liq. Trinitrin	... ♏ i.
	Liq. Strychnine	... ♏ iv.
	Sodium Bromide	... gr. x.
	Acid Phos dil	... ♏ x.
	Tr. Gelsemi	... ♏ v.
	Glycerine	... ♏ xx.
	Aqua ad	... ℥ i.
	℥ i. T.D.S.	

(7) Theelin: 1 c.c. injection or Eumenin (Glaxo) Placental Extract ℥ i twice daily for menstrual migraine.

Improve general condition of patients by suitable diet, etc.

HEADACHE: (1) Open bowels by a dose of Mag. Sulph.

(2) If the cause is malaria, prescribe Quinine.

(3) If the cause is 'cold' in the head, treat it with Dover's powder and Aspirin.

A useful home remedy for headache and coryza is:

Glycerhiza (Mithi Kathi) ½ tola, Zizyphus Jujuba (Unab) 10, Onosma Bracteam (Gazaban) ½ tola, Viola Odorata (Bunosha) ½ tola, Cydonia Vulgaris or Quinœ (Behi Dana) ¼ tola. Boil these in 1½ pao of water till one pao or ½ lb. of water remains. Strain and drink whole while it is still warm. Take twice a day.

(4) Headache due to change of climate: Quinine is good.

The following Indian preparation is also useful. It acts as a purgative. Pulvis Senna 1 tola, Chebulic ¼ tola, Beleric Myrobalan (Behera) ¼ tola, Viola Odorata (Bunosha), rose petals ¾ tola, Zizyphus Jujub (Unab) 8; Cardiamyxa (Lesora) 12.

Boil these in 1½ pao of water till one pao of water remains. Strain and drink whole. Take twice a day.

(5) Headache due to anæmia: Iron and Liver are specific.

(6) Headache due to vaso-constriction.

℞	Liq. Trinitrin	... ♏ iv.
	Acid Hydrobromic dil	... ♏ xx.
	Aqua ad	... ℥ p.
	℥ p. T.D.S.	

(7) Headache due to deficient coagulability of the blood shows itself as a dull, heavy ache worse in the morning and tending to wear off as the day advances. It is accompanied by mental and physical lassitude. Calcium (Sandoz) or Calci Bronat is specific. In all intractable cases of headache Calcium is useful.

(8) Tr. Cannabis Indica is useful for the symptomatic treatment of headache.

Lastly find out the cause and treat it. Headache may be due to: Ocular defects and eye strain, nasal obstruction, aural troubles, fevers, intracranial tumours, kidney diseases, sluggish liver, gastro-intestinal toxæmia, amœbiasis, etc.

Local application in headache: Apply any of the following:

℞	Menthol	... ℥ ip.	℞	Menthol	... ℥ i.
	Adeps Lanæ Anhyd	... ℥ ip.		Alcohol	... ℥ i.
	Soft Paraffin	... ℥ i		Ol. Caryophyli	... ♏ xx.
	Methyl Salicylas	... ♏ xv.		Ol. Cinnamon	... ♏ xx.
	Ol. Cajuput	... ♏ xx.		For external use.	
	For external use.				

In very persistent headaches which resist all treatment, it is well to try the effects of a blister on the nape of the neck, to be kept open with Savin ointment for a week or ten days on end.

TOOTHACHE :—The following local applications for toothache have been used with success.

℞ Camphor	... ℥ i.	℞ Mustaki	...10 parts.	℞ Camphor	
Acid Tannic	... ℥ i.	Myrrh	.. 5 ,,	Menthol	
Mustaki	... ℥ ip.	Acid Tannic	.. 5 ,,	Chloral Hydras	
Ol. Caryophyli	... ℥ i.	Morphia	... 1 ,,	Carbolic	
Chloroform	... oz. ii.	Cocaine	... 1 ,,	Acid āā ...	gr. xxv
Alcohol	.. oz. ii.	Menthol	...15 ,,	Cocaine ...	gr. i
		Eugenol	.. 9 ,,		
		Absolute Alcohol	·54		

℞ Camphor	... ℥ i	℞ Mastichi	.. dr. vi	℞ Acid Carbolic	... gr. xv
Chloroform	... ℥ ii	Ext Canabis Indica	dr. i	Menthol	... gr. x
Chloral Hydras	... ℥ i	Chloroform	... oz. ii	Collodion	... dr. I
Menthol	... ℥i	Dissolve, then			
Spirit	... ℥ iv	add Morphia...	gr. xx		
Tannic Acid	... ℥ i	Menthol	... dr i		
Mastich	... ℥ i	Chloral Hydras..	dr. ii		
Morphia	... gr. x	Camphor	... dr. iv		
Cocaine	.. gr. x	Ol. Cajuput	.. dr. ii		
Ol. Caryophyli	... ℥ i	Tr. Pellitory	.. ℥ iv		

℞ Resin	... 4 parts	℞ Tr. Iodine	... 1 part
Acid Carbolic	... 4 ,,	Tr. Aconite	... 2 parts
Chloroform	... 3 ,,	For painful gums.	

EARACHE :—The following are useful preparations :

℞ Tr. Catechu	... dr. i	℞ Anethaine (Glaxo)	.. gr. ii
Tr. Opii	... dr. i	Carbolic Acid	... ℳ xxx
Glycerine	... dr. i	Glycerine	.. dr. i
Aqua distil	... dr. i-dr. ii		

An excellent home remedy is prepared by expressing the watery juice from small pieces of white raddish (Muli) whose leaves should not be used. This juice is mixed with sweet oil or almond oil in proportion of 1 : ½ and the whole boiled till oil remains. This is strained and used for earache. Other local analgesics like Tr. Opii., Carbolic acid or Cocaine may be mixed.

Urticaria.—1. Open bowels by giving pill Hydragyri gr. iv–v at night followed by a dose of Magsulph in the morning.

2. Inject Adrenalin ½ c.c. with or without Ephedrine.

Calcium is also useful because of diminished coagulability of the blood in urticaria. Therefore an injection of Calcium may be given. Calcium (Sandoz) or Calci Bronat (Sandoz) is a good preparation. Calcium with Parathyroid is also used.

3. As the attack is usually traceable to some dietary indiscretion, prescribe any of the following mixtures.

℞ Pulvis Rhie	... gr. xii	℞ Sodi Bicarb	.. dr. p
Sodi Bicarb	... gr. xxx	Tr. Zengiberis	... ℳ 45
Tr. Gentian Co	... dr. i	Tr. Rhie	... dr. i
Aqua ad	... oz. iii	Aqua ad	... oz. iii
℥ i T.D.S.		dr. T.D.S.	

℞ Pot Bromide	... dr. p	℞ Calcium Chloride	... dr. i
Sodi Bicarb	... dr. p	Glycerine	... dr. i
Spt. Ammoni	... dr. p	Tr. Cardamom	... dr. p
Tr. Gentian	... dr. i	Aqua ad	... oz. iii
Tr. Rhie Co	... dr. i	Oz. i. T.D.S.	
Tr. Zengiberis	... dr. p		
Aqua ad	... oz. iii		

Oz. i. T.D.S. followed by the following powder.

℞ Gardenal (M. B.)	... gr. iii
Phenazone	... gr. vi
Ephedrine	... gr. ip
Cal Lactas	... gr. xxx

Divide in 3 Pds. 1 T.D.S.

4. *Benadryl* (P. D.), Antistine (Ciba) are new anti-histamine preparations useful in urticaria. The writer has used the former in few cases with good result.

5. *Quinine* is useful in urticaria and fever of malarial type. The writer has seen cases with characteristic syndrome of abdominal pain, fever and urticaria. Injection of Quinine with a Magsulph dose is specific. Even otherwise Quinine is an intestinal antiseptic and appears to do good in other cases too.

℞ Quinine Sulph	... gr. xii
Pot. Bromide	... dr. p
Acid Hydrobromic dil	... dr. ip
Aqua ad	... oz. iii

Oz. i. T.D.S.

6. *Arsenic* :—Urticaria is often caused by increase in eosinophile count in the blood. Arsenic is specific and may be given in the form of N. A. B. Thiosarmine, Thiarsin, Acetylarsan and Stovarsol (M. & B.)

7. *Emetine* :—Amœbiasis often causes urticaria which does not improve on the above line of treatment. There may not be acute symptoms of dysentery and the patient may deny having suffered from it. But stool examination reveals cysts. Emetine gr i. daily for six days cures urticaria. Even otherwise where stool examination does not show cysts, Emetine by acting as a depressant to the sympathetic nerves, is likely to reduce itching and urticaria.

Bacillary dysentery also causes urticaria. Intestinal antiseptics like Sulfasuxidine or Sulfathalidine (Phthalyl Sulfathiazole Sharp & Dohme) are likely to do good.

8. *Lobeline* (Sandoz) :—This drug often cures urticaria where other measures fail. How it acts is not properly understood. 1 to 8 injections of strong dose are recommended by the manufacturers.

9. *Ergot* :—Dr. Mackenna writes : "In chronic cases in which the cause has eluded discovery, oral administration of Extract Ergot Liq. ℳ x–xv T. D. S. for few weeks, gives very good results." It is to be given in persons of both sexes. Ergot may be given by injection in the form of Gynergen ½ c.c. (Sandoz). Bellergal (Sandoz) is another useful preparation and contains Phenobarbitone. Gynergen and Bellaxoline in tablet form. If Ergot is prescribed, its possible toxic effect should be remembered by the prescriber. This drug is said to act directly on the arterioles and causes them to contract.

10. *Vitamin K* :—This is also used with success in attack of urticaria. It has been claimed that a high proportion of patients with chronic urticaria show a deficiency of Prothrombin and are relieved by vitamin K in a dosage of 2 mg. T. D. S. Synkamin (P. D.) or Synkavit (Roche) or Kaplin (Glaxo) may be used.

11. Thyroid Extract has been tried by some.
12. Hydrochloric Acid after food in flatulent dyspepsia.
13. Auto-hæmotherapy gives good results.
14. Venesection : Where all measures fail.

Locally : use any of the following :

℞ Sodi Bicarb ... gr. 160
Aqua ad ... ʒ iv.
For local application.

℞ Camphor ... gr. xx
Amylum ... oz. p.
Venetian Talc ... oz. p.
For local use.

℞ Acid Hydrocynic dil ... ʒ i.
Aqua ad ... ʒ vi.
Poison. For local application only. Not to be taken internally.

℞ Lotio Calamine Oleosa.
With or without Phenol.

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3. Dhar's Medical Treatment.
4. Chandra's Treatise on Treatment.
5. Chopra's Tropical Therapeutics.
6. Journal of Indian Medical Assn.
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Shikarpur, Sind.

Modern Trends in Medicine

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COMING events cast their shadows before ; the future can be envisaged by a critical study of the present. A correct evaluation of the current thought, a proper guidance of the researches and a co-ordinated correlation of the present with the past in the field of sciences assure hopeful future, progress of mankind and achievement of the supreme ideals. During my two years' sojourn in U.K., I was impressed with the modern trends in medicine and it would be no misplaced faith to forecast a brighter future for medicine. And again, building a healthy nation through proper medical, inspection in schools and provision of a free extra meal by the State National Health Service and Health Insurance Scheme are long term measures showing how alive is the State towards the health of its people.

It is very interesting indeed to note that for the first time, mind is being directed (from the evolution of disease in the past) to the controlled study of a living normal call. The life of a normal cell was ill-understood ; its metabolism, respiration, digestion and excretion were vaguely formulated.

* Specially contributed to THE ANTISEPTIC.

The newly developed enzyme-system operating in cellular metabolism is a great advance. The functions of Nicotinic Acid and Riboflavin in the respiratory enzyme system are being worked out ; co-enzyme I & II as hydrogen-carrier and dehydrogenation of glucose—their reduction and re-oxidation to yellow enzyme—are very intricate processes. The importance of Vit. B in the metabolism of carbohydrate in the cell is a new discovery. It is such study of the fundamentals in cellular life that is going to revolutionise medicine in all aspects. A proper biochemical grasp of the factors and enzyme-systems associated with reproductive phase of the cellular organism holds the key to the cure of cancer. Selective absorption by cells and substrate competition of drugs open a new field in pharmacology. The action of Sulphonamides has been attributed to such an idea—starvation of bacteria due to selective utilisation of Para-amino-benzoic Acid.

Again the competitive combination of "dithiols" with toxic metals like Arsenic (thus sparing SH group from toxicity) has given us the latest drug BAL (British anti-lewisite) for reversing the action in arsenical poisoning. The study of 'sterols' provides great possibilities. In short, this new approach in medical research is full of great possibilities and 'cellular study' will lay down a surer foundation for application of morbid pathology to therapeutics.

Now turning to other fields, a great advance has been made in antimalarials by introduction of Paludrine. But the research is still in progress to work out the intracorpuscular and tissue phase of malarial parasite during incubation period. A drug which can affect this phase will be the final answer to the malaria problem. Study of viruses—particularly of influenza, common cold and infective hepatitis, has adduced many new data and it is possible that viruses which are unassailable so far may be brought under control. Prophylactic methods and vaccines have made a great headway and D.D.T. has made history in Hygiene and Public Health. The vital necessities of war have contributed to the discovery of this drug and many others. Streptomycin Sulphones and Para-amino Salicylic Acid have emerged from experimental stage to successful clinical trial and tubercle bacillus has after all suffered a challenge. New anti-biotics like Aerosporin (for whooping cough and typhoid) are being studied and chemotherapy has a great future. Nuclear physics is the latest among sciences to enable the study of pharmacology and therapeutics of drugs by radio-active isotopes and has opened up new vistas in the field of cure (*e.g.* in polycythæmia and leukæmia). Folic Acid as an essential factor in normal erythropoiesis and intestinal absorption has been discovered and clinically used in the treatment of certain (megaloblastic) anæmias and sprue.

In the domain of physiology, kidney functions have attracted much attention. Glomerular and tubular filtration can now be measured by Insulin and Diodrast clearance values and renal circulation has been studied. Renal anoxia resulting from 'circulatory shunt' has been proved to explain anuria occurring during black water fever and Crush syndrome, and elaboration of peritoneal dialysis and artificial kidney for extra-renal uræmia have been made possible. Enzyme-systems operating in the normal functioning of liver cells have been studied and Lipotropic factor established the role of diet in causation of liver disease.

Methionine and Choline (Sulphadryl molecule) have assumed an important place in the treatment of hepatic disorders. Amino-Acid therapy has

also been successfully used in infantile gastro-enteritis, burns and post-anæsthetic disorders. Meulengracht diet and its modification by Witts have been found useful in clinical tests. Electro-encephalography has come to stay as a useful scientific procedure in elucidation of nervous function. Auricular catheterisation has made it possible to study the dynamics of heart, and electro-cardiography has attained greater heights. Water metabolism, fluid and electrolytic balance, acid-base equilibrium and effects of water and salt deprivation on the body have been scientifically studied and the knowledge thus acquired has been applied clinically in therapeutics. Blood transfusion has been perfected and Rh-factor has been scientifically elucidated.

Aetiology of various diseases is still so vague; many an article of diet, tobacco and alcohol have been wantonly incriminated, which on critical study appear to be unfounded. Nervous factors in the causation of diseases (*e.g.* peptic ulcer) have been experimentally studied. The role of pituitary is still unsolved, but it plays a definite part in the causation of diabetes and hyperthyroidism. Goldblatt's experiments revealed Renin (a pressor substance) to be responsible for hypertension. Allergy as an ætiological factor looms large in this century's academic discussions; and rheumatism and Bright's disease may be proved to be allergic manifestations. Its role in tuberculosis is still undefined particularly with reference to immunity.

Apart from academic progress in the field of psychiatry, it is very obvious that patient's psychological adjustments have received much attention. Mother-father-child complex is an important development in child-study and the establishment of child-guidance clinics bears out its significance. Mental make-up goes a long way in treatment and in order to avoid a patient worrying all the time about his disease, he has been provided with various types of recreation to fill up his time and occupy his mind—so much so that tuberculous patients, who are not allowed out-of-bed but who are otherwise well, have ear-phones adjusted to receive well-arranged programmes. The correct behaviour of the doctors and nurses to their patients not only secures sympathy but a healthy adjustment.

A few words about the development of surgery in the service of medicine would not be out of place. Thyroidectomy with pre-operative preparation with Iodine and Thiouracil has been perfected. Sympathectomy for hypertension in selected cases gives good results. Lobectomy for localised bronchiectasis or tuberculosis is possible. Thymectomy for myasthenia gravis is a well recognised cure in suitable cases and is a great advance on Prostigmin therapy. Vagectomy for peptic ulcer is a new approach. Ligature of patent ductus arteriosus has been done successfully and constrictive pericarditis can be surgically dealt with. Cardiac surgery in the wake of thoracoplasty is epoch-making, while neuro-surgery is simply a marvel. Surgical technique is being worked out.

This is a very haphazard enumeration of the recent advances, though by no means exhaustive. Mass radiography, future of B. C. G. electrophoretic fractionation of human plasma for immunity factors and the successful treatment of subacute bacterial endocarditis with Penicillin have not even been mentioned. Suffice it to say that the progress is very satisfactory, achievements laudable and the future full of great possibilities.

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Plaster-of-Paris Technique*

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It is not intended to describe the different indications and contraindications of plastering nor to go into the descriptive details of the application of plaster in special regions. For the last ten years, the writer has been following the technique which is a bit different from the one described in the text-books, is simple and easy to adopt, does not need any preparation and yet gives the same end result without, in any way, jeopardising the benefits for which the plaster is used.

In all the text-books on the subject, much stress is laid on 'making plaster bandages' which operation 'although not very skilled does need considerable experience' and 'should never be a task relegated to the most junior nurse'. Surprisingly enough, it is absolutely unnecessary, rather superfluous, entailing waste of time, energy and material. All these factors which may mean nothing in private practice, are of considerable importance in hospital work where the staff and the financial resources, as is invariably the case, are miserably limited and a saving alround is something worth having. In the technique adopted by the writer, instead of 'prepared plaster bandages', plain bandages of required length and breadth are used. Immediately before use, they are soaked in salted water a teaspoonful of Sodium Chloride added to a bowl of water. Salt increases the rate of setting and so its use is a distinct advantage. Rate of setting is further influenced to some extent by the temperature of water in which the bandages are soaked and cream is prepared. It should be in the neighbourhood of 120°–130°F.

Plaster-cream of required consistency should be prepared by adding salted water to Plaster-of-Paris. It should not be done the other way round. It is always better to add a small quantity of water at a time and repeat the process until the cream of required consistency is obtained. Thorough mixing with fingers after each addition of a quantity of water should be carried out. Finger spatula is the best for mixing and breaking down the lumps to obtain a cream of uniform consistency. The cream should neither be very thin nor thick. This is learnt by experience alone. To get some idea of the consistency, suffice it to say that it should be thinner than condensed tinned milk. It would do for the inner coatings in between the bandages For the outermost finishing coat, cream of thicker consistency should be used.

Drawbacks of very thick cream are :—

(1) It is not easy of application.

(2) It does not easily go into the meshes of the bandage cloth which therefore does not take it up nicely and uniformly. It results in a weak cast of irregular thickness, which is very liable to crack.

(3) It gives a rather bulky cast.

* Specially contributed to THE ANTISEPTIC.

(4) It involves much more consumption of the plaster than is actually required.

(5) It starts setting in the bowl before the operation is over.

Drawbacks of thin cream are :—

(1) Because of high water content, it delays the setting of the plaster which is a serious handicap.

(2) It gives a very weak cast which invariably breaks.

The soaked bandages are taken out of water one by one as required and pressed firmly in between the hands in both the planes to squeeze out the water completely and thoroughly. This is very important because if it is not done properly, some 'loose' water is bound to remain in the bandages and would give rise to the same drawbacks as thin cream. Wet bandage is used because it is not possible to rub in the cream well into the meshes of a dry bandage. Moreover, a moist bandage can be made to embrace the part more snugly. Phenomenon of surface tension comes into play and it sticks, so to say, to the part or to the underlying layer of bandage itself better than a dry bandage because of the moisture it contains. Whether the bandage is applied to the part to be immobilised, which has been previously padded or otherwise as the case may be, or is made into slabs, each preceding layer of the bandage thus unrolled over the body or on the table (in case of slabs) should be well rubbed in with cream before being covered partly or wholly by the succeeding turn or layer of the bandage. This step too is very important because the integrity of the plaster depends on the thoroughness with which this operation is accomplished. When the requisite number of bandages and slabs have been applied (each slab should be covered and retained in position by another bandage wrapped round it), cream thicker than one used for the bandages should be applied to the whole cast as an overall coating and the plaster, if it is of good quality, sets during the final phase of cream coating.

Thickness of the entire finished plaster and of the overall coating is another point which deserves consideration. Over-all coating should not be very thin otherwise it peels off in a few days. It should not be very thick either because it unnecessarily adds to the weight of the cast. The practical point to remember is that the overall coating should be of such thickness that the uppermost layer of the bandage does not shine through it. Over those regious where the breakage is more liable to occur, the overall coating may be reinforced with extra thickness. As regards the entire thickness of the plaster cast, it should not be so thin and feeble that it fails to adequately support and immobilise the part to which it has been applied. Such a cast serves no useful purpose, rather gives a false sense of security and if it breaks down, as it is sure to, it has to be applied again, which means, besides further inconvenience to the patient, extra cost to the latter or to the hospital. Nor it should be so heavy as to interfere with the permissible movements of different parts of the body and of the patient as a whole, as the case may be. Very heavy coats naturally have the tendency to pin down the patient to bed and the latter avoids freely moving about. The entire weight of the plaster cast can be kept at the minimum (without in any way undermining its beneficial effects) by reinforcing the cast by means of slabs over the regions which require extra

support and thereby automatically reducing entire thickness over the rest of the cast area.

To summarise, the advantages of using plain bandages are :—

(1) *Economy* :—In either case, whether plain or prepared bandages are used, at the time of application of cast or preparation of slabs, cream of Plaster-of-Paris is indispensable. Plaster which has been consumed in the preparation of plaster bandages, is therefore an absolute waste. Besides, it does not in any way add to the strength or integrity of the plaster cast.

Consequently, the total quantity of plaster consumed with this technique is less than with the age-old method of using 'Prepared Plaster Bandages.'

(2) *Saving of labour and time*:—Preparation of plaster bandages requires a person to do it, be it a nurse, a ward-boy or a sweeper. It is nothing but 'Labour Lost'. Plain-bandage technique means conservation of labour and time of a member of the staff of the hospital.

(3) *Immediate application of the plaster*:—No 'pre-operative' preparation of plaster bandages is required and therefore the operation once decided upon can be undertaken at once. The utility of this technique is appreciated in the outdoor section of the hospital. If the method of using 'Prepared Plaster Bandages' is followed, the patient, if he is a fit case for immediate plastering, has either (*a*) to wait for a long time for fresh preparation of plaster bandages, or (*b*) has to come the next day when the plaster bandages would be kept ready for him, or (*c*) is plastered at once if the prepared plaster bandages are kept in air tight pins for ready use. The first two alternatives mean inconvenience to the patient and the third one is still more expensive because 'Prepared Plaster Bandages' do not keep long and get spoiled after some time. Hence the technique detailed above is a convenient one, not to the hospital staff only but to the patient as well, who is plastered within a short while of attending the hospital if he is a fit case for immediate plastering, and off he goes.

(4) *Rigidity of plaster*:—It depends upon (*a*) very thorough mixing of Plaster-of-Paris with water in the preparation of plaster cream and (*b*) 'catching' up of the threads of bandage by the cream. The bandages are used to reinforce the plaster setting and make it unbreakable like the wire gauze incorporated in the cement plaster casts used in house building. Nicely prepared plaster cream clings to and takes up better the threads of a wet bandage meshes of which are clear than to the threads of a prepared plaster bandage the meshes of which are already clogged with previously rubbed in dry plaster. Therefore the application of Plaster by this technique is not only easier and more economical, but it gives a firmer, smoother and a more rigid plaster cast than is obtainable with the technique of using 'Prepared Plaster Bandages'. Practical experience alone can bring home these facts better than the mere description of the kind given above.

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Alkaline and Sodium Citrate Treatment of Cholera and Summer Diarrhœa*

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I HAVE carried out Alkaline and Sodium Citrate treatment in cholera and summer diarrhœa during my many years of practice with excellent results. It is based on physiological and pharmacological grounds which I shall describe in the course of my article.

The aim of this treatment is to see that patients retain whatever is given by mouth. This factor must be constantly borne in mind. In this respect essential oils mixture—Pot Permanganate pills and Kaolin. "Bolus Alba" treatment is impractical as very few patients can retain these medicines in the stomach. This fact will be borne out by many practitioners. In cholera and summer diarrhœa there is a great tendency to vomit out all liquids and medicines.

Regime of my treatment is as follows:—

If the patient is seen in the early stage of the disease uncomplicated with anuria, 15 drops of Chlorodine in two teaspoonfuls of cold water is at once given to an adult patient, while infants and children receive much less proportionately. One can repeat the second dose if vomiting continues after half an hour. No further use of Opium should be made. If blood pressure is very low, say 70 or 80 mm., the practitioner should give two pints of Normal Saline with 5% glucose at the rate of one ounce per minute by intravenous route. If plasma is available it should be given preference as it is the method of choice. If intravenous route is not feasible then intra-peritoneal or subcutaneous route is followed. Doctor should carry blood pressure instrument with him to record blood pressure. After Saline injection ½ to 1 c.c. of Pitressin (Beta-Hypophamine) is given which maintains blood pressure and helps the tissues to retain water. While proceeding with injections carry out, *pari passu*, treatment which I shall presently describe.

If blood pressure is sufficiently high and on many occasions when Saline injections cannot be given especially in the case of infants and children, I prefer to get on with the Alkaline mixture the formula of which is as follows:—

Soda Bicarb	...	gr. lx
Soda Citrate	..	gr. lx
Tin Cardamom Co	...	dr. i
Syrup	...	dr. ii
Aqua ad	..	oz. iv

One teaspoonful to infants and two teaspoonfuls to adults every 15 minutes are given. This Alkaline mixture is sedative to the stomach. It soon stops vomiting and allows water to be retained in the stomach in large quantities. Cold unboiled water from an earthen pot is administered by sips *ad libitum*. It should be preferably given by spoons so that patients may not drink it in big draughts which cause vomiting. To infants and children water and mixture are given drop by drop with the aid of a

* Read before the Nasik Branch of The Indian Medical Association on 17-12-1947.

medicine dropper. The threshold capacity of holding water is very low in the stomach in cholera and summer diarrhœa. This Alkaline mixture increases it to a remarkable extent. Normally water is not much absorbed by the stomach. It passes through the duodenum into the small intestine where it is absorbed by the mucous membrane. Along with water Soda Bicarb and Soda Citras are also absorbed which increase the alkalinity of the blood. They thus reduce acidosis and keep up or induce diuresis in cases where it is suppressed.

In four hours' time patient will take and retain 60 grs. of Soda Bicarb and 60 grs. of Soda Citras. Allowing 6 hours for rest and sleep patient receives 540 grs. of both or nearly one ounce and a quarter which is enough to reduce acidosis. Soda Citras is changed into Soda Bicarb in combination with oxygen in the blood and $3H_2O$ molecule is liberated in this chemical process. The chemical equation is as follows:—

$$C_6H_5O_7Na_3,\ 2H_2O+9O=3NaHcO_3+3CO_2+3H_2O.$$

This ionic water molecule is an important source of water for delicate tissue cells. In its remote effect Soda Citrate is a diuretic. Part of it may act as an anticoagulant and thus reduce the viscosity of blood. Sodium Ion is a stimulator of adrenal cortex which maintains the concentration of Sodium, Potassium and Chlorine in the blood. Sodium Ion also helps to retain water in the tissues. It thus prevents further loss of chlorides from body fluids and tissues.

I preferably advise patients to drink cold unboiled water from the earthen pot. Ordinary cold water is beneficial on account of its dissociated salt ions which make it palatable. Boiled water in many homes takes up smoky odour which is resented by many patients and is responsible for causing vomiting. If water is from a suspected contaminated source then one has no choice but to advise boiling. But it spoils the taste of water which is not taken in enough amount.

Tinc. Strophanthus five minims per dose four times a day should be prescribed as a routine. Even if Saline injection is not given one should give 1 c.c. of Beta Hypophamine (Pitressin) to be repeated every 2 hours if necessary. If there is anuria give 5 grs. of Caffein-Sodi Benzoas.

Plain cold coffee with the addition of sugar and glucose and no milk is an excellent stimulant and a good diuretic. I recommend it every 2 hours in desired quantity. Some people prefer hot coffee. Patient must take it in sips and not in draughts. It should not be forced on the patient beyond what he can take. Otherwise he will vomit. We shall not give cause for vomiting on any account. Keep him warm with blankets and hot water bottles or hot bricks and apply liniment Camphor to extremities with gentle rubbing to relieve cramps. All this treatment should be carried out till all the symptoms have disappeared and the patient has become convalescent. The interval of administering the mixture and the dose should be gradually increased when signs of improvement appear. Useful discretion in diet should be followed.

Sulphaguanidine should be started when vomiting is completely under control and not till then. Its efficacy is not established beyond doubt and hence there should be no hurry in administering it.

To give Saline injections in many pints directly into the circulation is to put too much strain on the dehydrated pathologically feeble heart.

Large injections may cause fatal dilatation of heart in some patients. My method of treatment supplies water and alkalies in sufficient quantity to counteract collapse and dehydration in a physiological manner without putting too much strain on heart. Another great advantage is the avoidance of a severe reaction and hyperpyrexia which is a dangerous complication. There is a reaction in my treatment but temperature does not rise beyond 100 or 101°F. In Rodger's treatment too much importance is given to hypochloraemia and specific gravity. When there is suppression of urine, if too much Chloride is put in the circulation as is done in hypertonic Saline infusions blood cells are injured by osmosis and too much water is drawn out from tissue cells which are already clamouring for more water I should like to put emphasis on dehydration which is the outstanding phenomenon in cholera and summer diarrhœa. Dehydration affects tissue cells of the body, increases viscosity of blood, causes fall of blood pressure, cramps, and suppression of urine and produces pinched face and hollow drawn eyes. Treatment I advocate supplies sufficient water to the cells and blood from bowels without disturbing physiological processes and establishes normal alkalinity. It helps kidneys to function efficiently. One can see a good change in the general condition of the patient within a few hours of treatment.

I have forgone Saline injections on many occasions and have depended on Alkaline mixture and other regime of treatment. I have met with brilliant results and have no hesitation in recommending it to the profession.

Summary.—Soda Bicarb and Soda Citras mixture is suggested for cholera and summer diarrhœa. Importance of controlling vomiting is emphasised. Control is early and easily obtained by the mixture.

Treatment is based on the principle of following physiological processes. Emphasis is especially put on counteracting dehydration and its effects by giving the Alkaline mixture and water *ad libitum* by mouth.

Pharmacological grounds are given for including Soda Bicarb and Soda Citras in the mixture.

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Nasik.

Spontaneous Pneumothorax*

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SPONTANEOUS pneumothorax means spontaneous accumulation of gas or air inside the pleural cavity. The common age incidence of such cases is between 20 to 40 years and also in the males.

The sources of rupture of the pleura are due to: (*a*) in the lungs, *e.g.*, rupture of the tubercular focus or bronchiectatic cavity, bursting of the emphysematous bulae, lung abscess bursting into pleural cavity, malignant growth, gangrene and septic infarct of the lung, empyema eroding the visceral layer of pleura and communicating with bronchus, artificial pneumothorax and broken rib perforating the visceral layer of pleura; (*b*) in the abdomen, *e.g.*, perforation of the gastric or duodenal ulcer leading to the formation of subphrenic abscess which may again break through the diaphragm into the pleura; (*c*) in the chest wall, *e.g.*, discharging empyema necessitates opening externally, abscess of the chest wall and external injury of the chest wall opening into the pleural cavity.

Pathology.—In pneumothorax the intrapleural pressure which is normally negative rises *pari passu* with the accumulation of gas or air. This pressure may be equal to or greater than the atmospheric pressure depending upon the nature of the opening, if the latter is situated on the surface of the lung. In case of opening in the chest wall this pressure is always the atmospheric pressure. When opening on the surface of the lung remains latent, atmospheric air communicates through the bronchus and bronchioles with the air in the intrapleural space. If the opening is valvular admitting entry of air inside the intrapleural space, the intrapleural pressure increases with each respiration. In some cases after rupture the aperture is sealed up and the accumulated gas is absorbed through the lung surface.

Immediately after rupture the affected lung is partially or completely collapsed. If the pressure rises above the atmosphere, the mediastinum is pushed to the opposite side.

Symptomatology.—Sudden acute pain of bursting nature occurs after straining or cough. There is pain and dyspnœa. Patient is restless and alarmed. He is pale, cyanosed and appears blue with cold and clammy extremities. His respiration is hurried and his body temperature falls below normal. In a word he is in a state of shock.

On physical examination the patient is seen sitting up with ala nasi working. His respiration is rapid. There is little or no movement of the chest wall of the affected side. The affected side appears full. On palpation the apex is felt pushed toward the side opposite to the side affected. Movement of the chest wall is felt absent or diminished and vocal fremitus is absent but percussion note is tympanitic on the affected side. The breath sound is heard diminished or absent in case of partial or complete collapse of the lung. The area of chest wall over the collapsed lung produces a distant tubular note.

* Specially contributed to THE ANTISEPTIC.

Some cases of pneumothorax develop insidiously with complete absence of pain or any perceptible symptom. These are the cases where the opening is very minute or the lung is extensively diseased, fluid may accumulate in some cases where displacement of area of dullness with succussion splash confirms its presence. Bilateral pneumothorax though rare occurs with grave signs and symptoms.

Diagnosis.—Pneumothorax should be differentiated from pleurisy with effusion, subphrenic abscess containing gas, advanced emphysema obliterating the cardiac or hepatic dullness, large cavity in the lung.

Treatment.—This consists of treatment of shock and relief of distress of the patient. Hypodermic injection of Morphine gr. 1/4 is given stat. The patient is put on a back rest. If the respiratory distress is marked and the apical impulse is shifted to a great extent the gas is removed by means of an ordinary hypodermic needle fitted on an adapter whose other end is attached to a rubber tube dipped in a glass of water. In cases of less urgency the pressure is measured by means of an A.P. apparatus and necessary amount of gas is withdrawn. In cases of slight pneumothorax nothing should be done. The air or gas will absorb in course of time. If cases are complicated with serous or purulent fluid, this should be withdrawn.

Case report.—K. S., 38 years, H., M., complained of acute pain in the right side of chest at about 2 a.m. in February 1946. He sat for urination and as soon as he tried to get up, he got a sharp and severe pain which he described as "something bursting out." I saw him in his bed tossing and breathing hurriedly. He was pale and very much frightened. Resp. 22 per min; pulse 90 per min. His hands and feet were cold. Sudden appearance of his pain and restlessness put me in difficulty to diagnose the case. History of past illness was nothing particular.

I carefully examined him systematically and found his right side of the chest fuller than the left side with diminished movement. The apical impulse was little displaced. Percussion note was tympanitic throughout the whole of the right side and breath sound was markedly diminished on this side. I diagnosed this as a case of spontaneous pneumothorax which was confirmed by skiagram of the chest. X-ray film did not reveal any tubercular focus but the presence of gas with partial collapse of the right lung.

Morphine gr. 1/4 was given stat. He was put to bed and was watched for any severe respiratory trouble and cyanosis which luckily did not occur. He was given high caloric diet and complete rest for three months. He had an uneventful recovery and is completely free from trouble uptill now.

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P.O. & Vill Bansberia
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A Case of Nasal Myiasis

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A WOMAN, aged 68 years, was brought in an exhausted state with high fever, swelling of the face and hard breathing.

Past history and present condition.—She had an attack of bad cold three months back for which she took native medicine and had some relief. A week or 10 days after, she noticed brawny swelling of the nose which gradually extended to the eyes and cheeks. Within 24 hours the spread was so quick that her whole face was affected with this painful swelling which marred her normal facial features completely. A day prior to the consultation, she said she felt a peculiar sensation, the first of the kind, and expressed it as worms crawling inside her nose. Since then her breathing became more and more difficult, necessitating her to breathe by mouth more often. The nasal secretions which were till then scanty and thick began to resolve and she was bringing out semi-solid, offensive, muco-purulent discharge each time either she sneezed or blew her nose. To the utter suprise and horror, her attendants on one or two occasions found living, full-grown maggots (fly larvæ) in the nasal discharges which were also stained with streaks of blood. Her temperature was 104·8°F, pulse 140 p.m. regular but of low volume and tension; heart sounds normal but feeble; lungs nil abnormal, excepting a little catarrh of the upper respiratory passages. There was a sweet odour about her breath strongly suggesting the presence of sugar and acetone in her urine. The constipated bowels were opened with a soap and water enema. She was conscious, and answered all the questions put to her satisfactorily.

Urine: Sp. Gr. 1020; acid, albumin, +, sugar 2%; acetone +
Blood: Leucocytosis is present (polymorpho).

Local condition.—The semi-clogged nasal cavities having been cleared, a nasal speculum was introduced, and with the help of an electric rhinoscope the inside of the nose was well illuminated. On examination, maggots in abundance were seen in full swing in the 3 meatuses on either side trying to come out but receding at the light. The inside presented in addition a mottled appearance with bleeding points.

Treatment.—1. With light local anæsthetic drops (Novocaine 1/2% instilled into the nostrils) as many maggots as possible were brought out with a forceps. At a time 20–30 were removed and this procedure had to be adopted 4 times. Turpentine swabs to smell and vapours of a mixture containing Turpentine. Eucalyptus and Tr. Benzoin Co, in hot water for inhalations during the intervals, further facilitated the coming out of the maggots in larger numbers.

2. Magsulph fomentations to the face were given four hourly.

3. The temperature was brought to normal with Penicillin "G" (Squibbs) initial dose being 75,000 units, 2nd dose 50,000 units and subsequent doses of 25,000 units every 4 hours. On the whole, with 5 lacs units

of Penicillin, the temperature came down to normal and the patient was put on a course of Sulphadiazine 6 tabs. made into 4 powders, one powder every 4 hours with honey for three days and there was no further rise.

4. With 20 units of Protamine Zinc Insulin a day and rigid control over diet, the urine was sugar-free.

5. She had for sometime Calcium Lactus 15 grs. t.d.s. Mist. Stimulant Expectorans oz. iii, oz. i t.d s. in the beginning and Mist. Sedative Expectorans oz. iii, oz. i t.d s. in the later stages by mouth to check the bleeding and facilitate the coming out of maggots.

All the inflammatory signs had almost disappeared with the above lines of treatment and the patient showed marked improvement. About the 8th day, normal facial features were restored. But for a slight thin mucus discharge without any streak of blood, the inside of the nose was found to be maggots-free. Breathing through nose became easier and she could see as before. Having found the condition quite statisfactory, she was advised to go home and lead her normal life on some hygienic lines.

Points of interest:—(1) Though it is not uncommon to find maggots in the unhealthy wounds of skin, mucus membranes and intestines and though it has been recognised to treat cases of osteo-myelitis and other septic wounds with fly larvæ, cases of nasal myiasis are rather rare and seldom do we come across one such.

(2) The rapidity with which these maggots burrow into the tissues eating away in their passages, mucus membranes, muscle, cartilage, periosteum, even bone and thus get into the brain sometimes makes a case of nasal myiasis all the more serious and sounds a note of caution for prompt interference on proper lines to see that the maggots are brought out as early as possible without enabling them to get a free access into the deeper and vital structures.

(3) It is not a very healthy sign to have diabetes mellitus as a complication with a rapidly spreading cellulitis of the face, for the prognosis in such cases will not be all too favourable. Hence as a routine measure, it is strongly advisable to examine the urine and prompt treatment with Insulin, wherever indicated, is absolutely necessary to render the urine sugar-free at the earliest opportunity.

(4) With the advent of Sulpha group of drugs and Penicillin (thanks to the recent advances in science) a great problem is solved and we are now able to tackle confidently and with a large measure of success most of the inflammations in no time. The present case is an instance.

Aetiological factors.—Under this heading some of the observations recorded on the life history of some species of flies which cause myiasis in India and abroad may be of interest especially to the lay public.

(*a*) "Chrysomia bezziana," a true myiasis producing fly, never breeds in dead but always in living tissues. It has a wide distribution, being found in India and Cochin-China. It appears to have a predilection for human beings in India, the female laying numerous eggs in the nasal cavity or in tissues from which an offensive discharge emanates.

(*b*) "Rhinœstrus purpureus," the larvæ of this species are parasitic in the nasal passages of equines in Southern Europe, Asia Minor and Africa.

(*c*) "Chrysomia macellaria," a common insect in America, most active during the heat of the day; normally deposits its eggs upon open wounds or on dead tissues, attacks people sleeping in the open air specially those who have offensive discharge which attracts it.

(*d*) "Wolfahrtia magnifica" is the only specific myiasis producing fly found in man in Europe. In habits it is similar to the species previously described.

Conclusion.—It is a known fact that a large number of deaths every year due to various diseases, occur either directly or indirectly through the medium of flies. These flies can be broadly divided into the blood-sucking and the non-blood-sucking. Some of the former are the Tse-tse-fly, the Chrysops and the Stomoxys, which as intermediary hosts are responsible for sleeping sickness, the loa-loa infection and other trypanasome infections respectively. The non-blood-sucking are chiefly responsible for the spread of more common diseases of the tropics, acting as mechanical carriers of disease producing germs coming into contact, as they do, with the infected fæces, sputum, vomit etc., and contaminate the articles of food and water. These facts are to be sufficiently stressed from time to time on the minds of the public; precautions and preventive measures are to be vigorously taken by the sanitary authorities to minimise the incidence of the diseases they cause.

But the fact that certain species of flies do deposit their eggs on the offensive nasal discharges or even ocular discharges and that the eggs in normal course hatch into the active, voracious larvæ known as maggots, which set up inflammation and eat their way into the adjacent tissues producing the condition called myiasis, is known to a relatively small percentage of the lay public whose ways of living, in spite of the warnings and teachings are far from hygienic. The poor victim, not knowing what to do, is likely to neglect the condition and runs the grave risk of losing his or her life even at times.

Summary.—1. The incidence of nasal myiasis, though not so common, will have to be viewed with great concern in view of the grave complications to which it may lead, if neglected.

2. Any co-existing disease should not be lost sight of as the sight of infection is the dangerous area of the face.

3. It is highly desirable that the lay public should be made to understand how dangerous are the flies and it is up to the authorities to insist on the measures the public have to adopt to protect themselves against eggs, larvæ, pupæ and adult forms in order to safely avoid the serious diseases caused by such a tiny but dangerous insect, the fly, our daily visitor.

Acknowledgment.—My thanks are due to (1) Dr. C. Sitaramaraju, M B., B.S., District Medical Officer, Vizagapatam, for his approval and permission to publish this article. (2) Dr. Ch. Krishnamurty, L.M.P., Civil Assistant Surgeon, Class I, Government Hospital, Chicacole, for his valuable suggestions and interest evinced in this case.

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Two Case Reports

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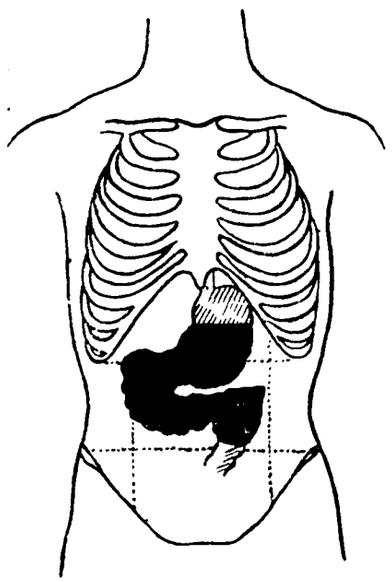
Case 1.—A patient, Dorakala Thevar of Seevalasamudram, aged 40, male, was admitted in the surgical ward of this hospital on 11-1-'45 He complained of very severe pain in the upper abdomen which was very distended. He had had the trouble for 4½ years and it was worse for the last month. His usual diet before the symptoms developed was rice, mutton, fish, vegetables, milk, eggs, butter, ghee, etc. He had pain to start with and that pain was colicky in nature. In the beginning the pain lasted for two or three days and then there was an interval for two or three weeks without pain. Then the interval became shorter and shorter and in the end he had pain every day. The pain has no relation to food. When the pain was very severe the patient induced vomiting two or three times a day by putting his fingers into the throat. This gave temporary relief of pain. The pain was continuous and worst in the night. Peristalsis was not visible. Appetite was diminished and he had occasional hiccough. On palpation he had tenderness under the right upper rectus muscle and slight tenderness all over the abdomen. The liver was not enlarged.

He had also a right inguinal hernia, the size of a big mango which was reducible.

The general condition of the patient was very thin and emaciated. He was almost reduced to a skeleton. The heart and lungs were normal, the pulse was normal and steady with good tension.



Now his diet was liquids only, congee water, coffee and milk etc.

As regards the family history, his father had gastric troubles and died of the same.

As routine a fractional test meal was done on 12-1-'45, and it was found to be within normal limit. He was given Oil of Chenopodium 15 minims, and Castor oil 1½ ozs. on 13-1-1945. This is the routine treatment we give to cases of chronic abdominal pain with dyspepsia before undertaking any surgical measures.

X-ray examination by fluoroscope was done in the evening of 13-1-'45. Two fluid levels were found as shown in the figure. One fluid level was in the stomach due to barium meal, the second fluid level was a problem to find out. There was no ascites. Unfortunately an X-ray plate was not taken and the figure shown is only the drawing of the findings during the X-ray examination. It is not a pancreatic cyst which never gives a fluid

level but it will be felt like a round tumour in the middle of the upper abdomen.

The stomach was large, the duodenum was not visualised. No peristalsis was seen. But that area was very tender. After an hour all the barium was found in the stomach itself and none had gone into the intestines The tenderness was as before. After two hours also the same picture was seen in the X-ray examination. So the provisional diagnosis made was duodenal ulcer with the possible other lesion and a laparotomy was decided upon.

Then it was a great problem to persuade the patient to have an operation. He felt that if the hernia were operated on he would be alright. He was not at all willing to have an abdominal operation. He was convinced in the end that before the intestinal trouble was corrected there was no use in operating on the hernia.

The patient was prepared for the operation on 15-1-'45. He was taken to the operation room, the pre-anæsthetic ·75 cc. injected hypodermically. (The pre-anæsthetic contained Morphia ¼ gr. Hyocine Hydrobrom 1/100 gr. Atropine 1/100 gr. in 1 c.c.), Spinal anæsthesia (Novocaine 4% 3 c.c. diluted in the spinal fluid upto 10 c.c.) was given. With all aseptic precautions the abdomen was opened. It was found that there was a large stomach with an obstructed duodenum with a big ulcer posteriorly. On examining the abdominal contents further the duodenum was found dilated and on further investigation there was found a stricture in the jejunum almost complete about an inch and a half in length, and about two feet below the duodenal ulcer. The fluid contents of the intestines above the stricture was the cause of the second fluid level in the X-ray examination. Below the stricture the intestines were quite normal, the stricture was found to consist of scar tissue.

Then the question as to what should be done arose—whether to do a posterior gastro-enterostomy first and then deal with the stricture by a second operation, or *vice-versa*. But reflecting that neither procedure alone would give much relief to the patient it was decided to deal with both the stomach and the stricture at one operation.

A posterior gastro-enterostomy was done in the usual way and afterwards the stricture was dealt with. Since the proximal portion of the intestines was dilated it was impossible to do an end to end anastomosis. So side to side anastomosis of the jejunum above and below the stricture was done. The abdomen was closed in layers as usual and the patient was taken to the ward.

The post operative period was very uneventful, the patient got on quite well without any complication. The stitches were removed on the eighth day. He resumed a normal diet gradually. He stayed in the ward for 3 weeks after the operation, and was discharged quite fit on 7-2-'45.

Before discharging the patient the question of hernia was considered. As he was feeling very weak, he wanted to go home saying that he would return in a month's time.

It is a great pleasure to see again people who are cured of their diseases by operative procedure. This patient came back and was readmitted after 21 months on 3-10-'46 for operation for his hernia. The patient has no abdominal discomfort he had had as before. He had put on much weight and he was healthy. He was operated on 1-11-'46 for his hernia. The post-operative period was without any complication. The wound healed by first intention. He stayed in the hospital for 24 days and went home well satisfied.

Case 2.—A patient, Annammal by name, from Changanacherry, aged 49, was admitted in the Women's Cancer Ward on 3-5-'47. She had cancer of the left lower jaw and part of the left cheek close to it. The duration of the disease was three months. The submental and submaxillary glands were enlarged.

She had at the same time an enlarged thyroid about the size of a big mango occupying the whole front of the neck, covering the larynx as well. The duration of the goitre was eight years. The tumour was an adenomatous one and not toxic. It did not give the patient any trouble or any pain when swallowing, but she felt some discomfort due to the huge size of the goitre. The blood pressure was 110/80.

Here the problem was that one was a malignant disease and the other a simple tumour. The question was which should be operated first, the jaw or the goitre. As the goitre was a very big one, the removal of the cancer jaw was a problem owing to the difficulty of doing the laryngotomy. We, in this hospital do laryngotomy for removal of jaws and anæsthetic administered through the laryngotomy tube. Under such circumstances if I do goitre first and then the cancer jaw, the cancer would grow very quickly to a big size and it would become inoperable in two or three weeks' time. However it was decided to remove the cancer jaw first in spite of the difficult problem of doing the laryngotomy.

The general condition of the patient was not very satisfactory. She was anæmic, R.B.C. was 3,400,000, and hæmoglob. 60%. She was given Ferri et Ammoni Cit mixture. She was also given Calcium with Berin Tabs. Vitamin K pills some days. The blood slightly improved. R.B.C. was 3,900,000, and hæmoglob. increased to 65%. Then she was fixed for operation on 9-5-'47.

Then the patient was taken to the operation room and was given pre-anæsthetic 75 c.c. by injection half an hour before the operation. Then general anæsthesia (Chloroform) was started. The laryngotomy was managed with great difficulty by pushing down of the upper edge of the goitre with a small retractor. The left lower jaw was removed with the growth completely including the submental and submaxillary glands.

The patient had a quiet night after the operation due to an injection of Tropi 8 minim. On the second day the patient developed chest complications with a temperature of 100 8°F. On physical examination it was found that the patient had consolidation on the right side. Penicillin was given, 25 thousand units 3 hourly for two days. On the 3rd day the temperature came down. The lungs became clear, the respiration came to normal with a slight cough occasionally. The wound healed by first intention except in the place where the drainage tube had been put. The stitches were removed on the 10th day. At the site of the drainage tube there was left a sinus which healed within a month's time. During this period the patient had treatment for anæmia.

After staying in the hospital for five weeks after removal of the jaw, the patient wanted to have the goitre removed. Therefore the patient was prepared for operation on 25-6-'47. She was taken to the operation room, the pre-anæsthetic given as usual. General anæsthesia (equal parts of Chloroform and Ether) was administered. The tumour was removed very slowly through a collar incisor.

After the operation the patient had an injection of Morphia 1/6 on the first night and from the 2nd day onwards she had a very peaceful convalescence. The stitches were removed on the eighth day. The patient was very much pleased and she was discharged on 10-7-'47 with the instruction to report if any sign of recurrence of the cancer in the mouth appeared. The photos of the patient before and after the removal of the goitre are given. (*Vide photos*).

I thank Dr. D. Joan Thompson for her encouragement in writing this report.

Neyyoor, Travancore,
S. India.

A Case of Perforated Gastric Ulcer Treated without Operation

N. J. BANDORAWALLA, M.B., M.S., F.C.P.S.,
Superintendent, Tarachand Hospital, Poona.

It is a known dictum in surgery that all perforated gastric and duodenal ulcers must be immediately operated on, since the mortality varies directly with the time that lapses between the perforation and the operation. One must, therefore, have very strong reasons and sound justification for attempting what looks at first sight a very hazardous experiment.

I was very much interested in an article by Dr. Herman Taylor, Assistant Suregon, London Hospital, in the *Lancet* some months ago, where he claims to have treated 28 cases of perforated gastric and duodenal ulcers, with only four deaths, without operation. Of the four deaths, three, the author attributes to causes unconnected with treatment.

Before referring to the case mentioned above, I would like, in the first place, to give an idea of the sound reasons given by Dr. Taylor, for departing from the routine practice, viz., immediate operation. These may be summarised as follow:

(1) The peritoneum has high absorbing powers and can fight infection efficiently, granted the infection is not gross, continuous or repeated.

(2) During operations on early cases of gastric or duodenal perforations the author found that the peritoneal effusion was almost always sterile; it was therefore not necessary to drain the abdominal cavity after suturing the perforation, unless grossly contaminated.

(3) In many cases the perforation was found to be adherent to the surrounding structures, most often the under surface of the liver, and these adhesions had to be torn before the perforation could be sutured

(4) In some of his late cases the author did not disturb the adhesions, but only mopped up the effusion and closed the peritoneal cavity without drainage.

(5) From the above observations the natural conclusion the author came to, was that he opened the abdomen unnecessarily, since he did not touch the perforation and the effusion would have been absorbed spontaneously, as it was limited and sterile.

It was from the above observations that Dr. Taylor evolved a non-operative technique, for treating perforated gastric and duodenal ulcers, that is worth a trial, in selected cases, especially where immediate operative facilities are not available.

Dr. Taylor lays down two rules which must be followed while treating a case on conservative, non-operative lines. These are: (*a*) the stomach must be empty at the time of the perforation, *i.e.*, no food should have been taken at least 6 hours prior to perforation, and (*b*) the case must be taken in hand within 4 to 6 hours after the perforation.

The details of non-operative treatment.—Immediately on admission the patient is given ¼ gr. Morphia, and one or two Cocaine Lozenges to suck. Within 10 to 15 minutes after the Morphia, a large stomach-tube is passed and the contents aspirated. This is followed by a Ryle's tube through the nose, which is kept in the stomach and the contents aspirated every ½ to 1 hour by means of a 20 c c. syringe, during the first 24 hours. Morphia is repeated as often as necessary during the first 2 or 3 days. The patient is given Saline and Glucose intravenously or rectally as necessary, the quantity varying with the quantity of fluid aspirated through the stomach.

The same procedure is followed during the second 24 hours, but now the aspirations are followed by sips of sterile water by mouth.

Small quantities of milk and water are substituted on the third, and aspiration is omitted, but Ryle's tube is kept in. On the fourth day Ryle's tube is removed and the patient put on small quantities of liquids every two hours. Of course this routine has to be varied according to the response of the patient.

Of course alkalies and dietetic regime is to be continued for a considerable time as in ordinary medical treatment of a duodenal ulcer.

Now I shall describe the case that was under my treatment some four months back.

A young Hindu, vegetarian, aged about 35 years, was admitted into the hospital at 10 a.m. on 8-8-'47. He gave a history of pain lasting for about 20 days some 5 months back. The pain was located in the epigastric region, it had no relation to food and was not accompanied by vomiting. For 10 days previous to the present catastrophe the patient had similar pain in the epigastrium which was accompanied by vomiting occasionally. On the morning of August the 8th he got a sudden severe pain in the upper abdomen. He was seen by his family doctor within an hour who kept him under observation for a couple of hours and sent him to the hospital with a diagnosis of perforated gastric ulcer.

I saw the patient at about 10 o'clock the same morning. He had definite rigidity (board-like), and severe pain and tenderness in the upper abdomen. The breathing was almost entirely thoracic. The lower abdomen was also rigid though much less, and also tender on deep pressure. There was no vomiting. The liver dullness was present. The pulse was 76 and the temperature 97·4°F. The patient's look was anxious and there was very slight restlessness.

It was immediately decided to treat the patient on non-operative line. The patient was given a Morphia-Atropine injection and within 10 minutes a Ryle's tube was put into the stomach through the nose, and anchored to the forehead by means of a strip of stitching plaster. (It was not thought necessary to pass a full size stomach tube and empty the contents, as the patient had taken no food for about 12 hours previous to the perforation.) About 8 ounces of coffee-coloured fluid was aspirated through the tube. The contents of the stomach were aspirated every hour for the first 24 hours: the total quantity amounted to 1½ pints excluding the 8 ounces which were aspirated at the first sitting. The patient was given 25 c.c. of 25% Glucose intravenously, and 4 to 6 ozs. of Normal Saline was given per rectum every 4 hours. Morphia was repeated after 12 hours though the patient was not restless.

The same procedure was followed the 2nd day except that the stomach was aspirated 2 hourly. However on this day the patient started oozing blood through the tube. He was, therefore, given 10 mgm. of Kapilin, and

Two Case Reports

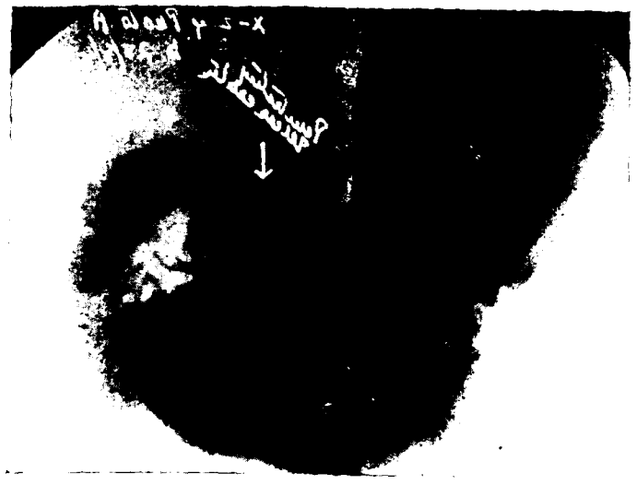
A. Abraham

CASE 2
Before removal of goitre.
[Vide page 338.

CASE 2
After removal of jaw and goitre.
[Vide page 338.

A Case of Perforated Gastric Ulcer Treated without Operation

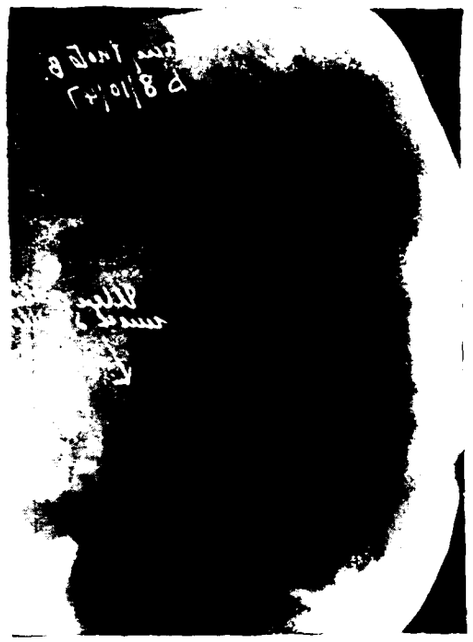
N. J. Bandaranaike



X-ray photo A.
[Vide page 341.

A Case of Perforated Gastric Ulcer Treated without Operation

N. L. Bandopadhyay



X-ray photo B.
Vide page 341

X-ray photo C.
Vide page 341

500 mgm. of C. both intramuscularly. The bleeding stopped by the evening. Unfortunately the total quantity aspirated on this day was not kept though it was more than the previous day. Morphia was again repeated morning and evening and intravenous Glucose and Rectal Saline continued four hourly as on the first day. In the morning the patient's pulse increased to 100, and caused some anxiety, but by the evening it came down to 78. By this time the rigidity and tenderness had disappeared all over the abdomen except in the epigastric region, and the patient felt much better all round.

On the third day Morphia was omitted. The aspiration was continued every two hours but one ounce of water was put in through the tube after each aspiration. Intravenous Glucose was omitted but Rectal Saline was continued four hourly.

On the fourth day the Ryle's tube was removed and the patient was given small quantities of Glucose water every two hours by mouth. Rectal Saline was also omitted.

On the sixth day two ounces of orange juice was alternated with two ounces of milk and soda in equal parts every two hours. All pain and tenderness even in the epigastric region had disappeared by this time.

From the eighth day the patient was put on regular four hourly drinks of weak tea, milk and *kunji*; the patient was put on curd and rice from the 12th day, milk and fruit juice being continued simultaneously.

The patient was discharged from the hospital on 20th day, after taking an X-ray picture after barium meal. This showed a large penetrating ulcer of the lesser curvature of the stomach. (*See X-ray photo A.*) He was given alkali powders and the usual instructions as regards diet.

The patient has since been kept under observation and has shown no signs of recrudescence of pain or vomiting. He is still on diet and is taking alkali powders twice a day though not regularly.

X-ray picture B was taken on 8-10-'47, and shows the ulcer crater nearly half healed, while that taken on 5-11-'47, *i.e.*, nearly three months later shows hardly any nitch (*See X-ray photo C*).

Surgical Nursing Home, Deccan Lodge,
18, Wellesley Road, Poona.

A Suspected Case of Cerebral Meningitis

Treated with four times Lumbar Puncture

MOHAMMAD ALI,
P. O. Bholahat, Dist. Rajshahi.

I WANT to report this case as it will be a sort of help for the rural practitioners.

On 8-6-'47, at about 4-30 p.m. I was called to attend a Hindu patient of 35 years of age, named Babu Rati Kanta Roy, under the Bholahat P.S. in the District of Rajshahi, who was suddenly attacked with high fever accompanied with heavy rigor. The temperature was running from 12 a.m. Previous to this he was quite well and there was no premonitory symptom. I found the case on a high temperature, low muttering delirium and restlessness. The temperature was 104°F; respiration rate 28 p.m.; pulse 118 p.m.

Tongue was thickly coated and dry, chest normal, but a slight hurried breathing was going on. There was slight enlargement of spleen below the

costal margin, but liver not palpable. The abdomen was slight tympanitis. He vomited three times some quantity of bile-pigmented fluid every half-hour, just before my attending the case. The bowel moved once in the morning as usual. He talked incoherently to everyone. At my first visit, I put him on simple Bromide with Alkaline Mist. T.D.S.

But at about 11 p.m., at night on the same date he suddenly fell unconscious and gradually came to a moribund condition.

On examination I found the case head retracted, great tension with prominent rigidity of the neck, eyes closed, the pupils dilated, heart feeble and irregular, temperature as before. Finding all these symptoms, I came to the conclusion that he might have been attacked with cerebral meningitis. I suspected about it, as this type of case was not seen before in this locality. Such 4 or 5 similar cases died without diagnosis, who were treated by other medical practitioners of this locality. I clinically diagnosed the case as cerebral meningitis, finding all the above signs and symptoms in him. I advised that the head of the patient should be washed with cold water repeatedly and went through the following course of treatment :—(1) Quinine Bi-hydrochlor gr. x in 2 c.c. (Sacc. sol.) I.M. (2) Glucose sol. 50% 25 c.c. together with the Dagenan soluble dissolving with 5 c.c. re-distilled water, I.V. with drip method to combat the tension and rigidity of the neck.

(3) (*a*)

Sodi Bicarb	...	gr. xv
Sodi Bromide	...	,, xv
Hexamine	...	,, xx
Tr. Belladonna	...	℥ vi
Tr. Hyoscyamus	...	℥ xv
Spt Chloroform	...	℥ x
Elixir Val Brom	...	℥ xv
Aqua Cinnamon ad T.D.S.	...	oz. 1

(*b*)

Gardinal Tablet		
Caffein Citras	...	1 tab.
Cibazol Tablet	...	gr. v
Sac Lactate	...	1 tab.
		gr. xv

Mix and put 3 powders. The above mist and powder given every 2 hours alternately.

Next day, on 9-6-'47, I found the case in the same condition as was in the previous night. Bowels not moved during the last 24 hours and urine too was suppressed totally. But, I was definitely confident of my diagnosis and I advised that the patient should be lumbar punctured in order to drain out the C.S. fluid at once and at the same time I advised to call another physician for consultation. A local prominent private practitioner of Malda town, named Dr. Kamal Krishna Sanyal, M.B., attended the case at about 4-30 p.m. on that day. The doctor gave his opinion that the case was one of cerebral meningitis. Then the L.P. was made cautiously and about 15 c.c. turbid coloured fluid came out.

He was kept under the following line of treatment: (1) Gardinal Sodium 1 c.c. (I.M.) (2) Quinine Bi-hydrochlor, gr. x (Sacc. sol) I.M. (3) Glucose sol. 50% 25 c.c. together with Dagenan soluble dissolving with 5 c.c. re-distilled water intravenously with drip method.

(4) (*a*) ℞

Menthol	...	gr. 1/8
Chloritone	...	,, 2½
Hydrarg Sub	...	,, 1/16
Caffein Citras	...	,, 1¼
Camphor Monobr	...	,, 1¼

Pulv. one send 8 such, one dose should be taken at every 2 hours.

(*b*) Repeat the mist of 8-6-'47 3 doses.

(*c*) Coramine Liq. by mouth ℥ xv with 1 oz. distilled water separately.

Next day, on 10-6-'47, at 9 a.m., temperature came down to 101°F; respiration 24 p.m.; pulse 110 p.m.; and bowels moved once early in the morning with some heavy quantity of micturition.

The patient was still in the stage of semi-conscious but could open his eyes if called, but could not respond to the questions though he could stretch out his tongue if asked. The same treatment was repeated for that day.

Next day, on 11-6-'47, the temperature was the same but the condition of the patient was so good in comparison to other symptoms that he talked and complained about the tension and retraction of the neck which he could not bear. Bowels did not move during the 24 hours, but a considerable amount of urine had passed. I came to the conclusion that lumbar puncture should be done once more so that all the troubles may be relieved simultaneously. I suggested them to call once again the physician who came from Malda town. At about 5 p.m. he came and the L.P. was made. About 15 c.c. turbid coloured fluid came out

Treatment followed on the following line :—(1) Dagenan soluble one ampoule dissolving with 5 c.c. re-distilled water I.M. into the gluteal region deeply to combat the tension and rigidity of the neck. (2) Glucose sol. 50% 25 c.c. together with the Sodi Bicarb sol. 7½% 25 c.c I.V. to suppress the toxæmia.

℞ (*a*)

Pot Citras	...	gr. xx
Sodi Bicarb	...	,, xv
Spt Ammon Armt	..	℥ x
Glycerine pure	...	dr. i
Elixir Val Brom	...	℥ xx
Syrup Lemon	...	dr. i
Aqua camp ad T.D.S.	...	oz. 1

(*b*) Thiazamide tab. (760) 3 tablets.

(*c*) Cibazol tab. 3 tablets. Alternately to be taken every 2 hours.

Next day on 12-6-'47, at about 9 a.m. The temperature came down to 98°F.; pulse 100 p.m.; respiration 20 p.m.; bowels moved with glycerine enema, urine passed in normal quantity every 6 or 7 hours interval.

I found the case in a good condition. He could talk and answer questions. But he could not bow his head in the front due to tension and retraction of the neck at back.

He was kept on the following treatment :—(1) Quinine Bi-hydrochlor gr. x in 2 c.c. (Sacc. sol.) I.M. (2) Dagenan soluble, one ampoule dissolving with 5 c.c. re-distilled water, intramuscularly. (3) Glucose sol. 50% 25 c.c. with Mag. Sulp. sol. 50% 10 c.c. was given to relieve the occasional convulsions of the upper limbs, such as hands and head. (4) (*a*) Repeat the above Mist. of 11-6-'47. T.D.S. (*b*) Repeat the powder of 9-6-'47, 6 doses.

At 4-40 p.m. on that day, I was again called, as the temperature again had shot up to 104°F and the head was tossing from side to side. I immediately went there and found him again in a bad condition. He was groaning and out of sense, no response if called. Temperature 105°F; respiration 30 p.m.; pulse 120 p.m.

The eyes congested and the pupils were dilated, but abnormal condition of the bowels, rigidity of neck and retraction of the head were same as before. Finding all the symptoms I was puzzled what to do then. The head was washed continuously with cold water. I adopted the following line of treatment :—(1) Sodium Gardinal ampoule, 1 c.c. (I.M). (2) Quinine Bi-hydrochlor, gr. x in 2 c.c. (I.M). (3) Dagenan soluble dissolving in 5 c.c. re-distilled water along with 50% 25 c.c. Glucose sol. I.V. in drip method.

(4) ℞

Sodi Bicarb	...	gr. xx
Pot. Citras	...	gr. xx
,, Bromide	...	gr. v
Hexamine	...	gr. xx
Spt. Ammon Armt	...	℥ xv
Tr. Chlorf Co	...	℥ xx
Syrup Pruni Verg	...	℥ i
Aqua Anithi ad	...	oz. i T.D.S.

Next day, on 13-6-'47, I found the condition of the patient was same in every respect as was on the 12-6-'47, and the treatment had not been changed for that day. I again attended him in the evening and found that the patient off and on was tossing his head from side to side. His head was washed by cold water for an hour and he was relieved. I also enquired about the movement of the bowels but to no effect. Some small quantity of urine had passed unconsciously.

Next day, on 14-6-'47, in the morning the younger brother of the patient came to me and reported that he has come to his full sense and saying that he was feeling a heavy load in his bowels. I went with him and found the condition was much better than on other days. Temperature 98°F; respiration 20 p.m.; pulse 90 p.m.

The bowels was hard and tympanitis. I gave him Glycerine with soap water enema. After 15 minutes some large quantity of hard stools with some fæcal matter came out. There was no head complaint except the retraction and tension of the neck-muscles. At about 4 p.m. lumbar puncture was again made by the consulting physician who came from Malda town. The fluid came out about 10 c.c. in a white tinged colour. I followed the following treatment: (1) Quinine Bi-hydrochlor 5 gr. in 1 c.c. (I.M.). (2) Gardinal Sodium, 1 c.c. (I.M.). (3) 25% 25 c.c. Glucose sol. along with the 7½% 25 c.c. Sodibicarb sol. intravenously. (4) Alkacitron, (Gluconate & Co.) to be taken by mouth *ad libitum*. (5) Thiazamide tab.: 3 tablets, 1 tablet every three hours.

The condition of the patient did not take any turn and was the same from 15-6-'47 to 20-6-'47.

On 21-6-'47, in the morning, lumbar puncture was done again as there was a bit of trouble of the neck muscles, and colourless C.S. fluid about 5 c.c. was drained, according to the advice of the physician. All sorts of injectable medicines were stopped and the following line of treatment was adopted:

(1) ℞ Acid Hydrochlor dil ... ℥ xx
Aqua Chloroform ad ... oz. i
T.D.S.

(2) ℞

Sodi Bicarb	...	gr. xx
Spt Ammon Armt	...	℥ x
Tr. Belladonna	...	℥ v
Tr Hyoscyamus	...	℥ x
Peacok's Bromid	...	℥ xv
Syrup Auranti	...	dr. i
Aqua Camp ad	...	oz. i t.d.s.

22-6-'47 to 26-6-'47, as the condition of the patient was gradually improving, there was no need for changing the treatment within this period. He was kept on barley water, dab water and fruit juice from the very beginning of his attack.

On 27-6-'47, I found him in good condition in all respects. He wanted to eat rice. I gave him rice once in a day with fish and advised him to take milk with barley in the evening and thus he was fully cured and is enjoying sound health up till now.

I am too grateful to Dr. Kamala Krishna Sanyal, M.B., for taking keen interest to help me in the treatment of this case.

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Environmental Hygiene Committee

We have been consistently and persistently urging upon the attention of the Government of India that any scheme for the improvement of public health, if it is to succeed, should be an integrated one, intended to promote co-ordinated advance over the country as a whole. And for this purpose we have been urging upon the attention of the Director-General of Medical Services in India, Dr. JIVRAJ MEHTA, ever since he assumed the reins of the office, to convene a Conference of the Ministers of Public Health and Medical Relief in the Provinces and States, to discuss the matter in all its bearings and implications and evolve a common programme of action applicable to all the units alike. In the scheme of provincial autonomy now in force whereby the Provinces and the States have absolute control over these departments, it is only a general understanding and a common binding, *i.e.*, a gentleman's agreement, that can bring about that co-operation and co-ordination which are absolutely necessary if any attempt to ensure positive health to the people is to succeed. By saying this we do not mean that the units are oblivious of their responsibilities in this behalf, or are sitting with folded hands, merely looking on at the rot that had set in and is eating the vitals of society. They have prepared plans of reconstruction, conditioned of course by the nature of their circumstances, and modified in some places on the wrong side, we regret to say, by the prospective fall in revenue and the increasing and pressing demands of other departments. Such plans are bound to be lopsided and fall considerably short of the needs of the situation. That is why we are urging for a common platform and a common programme of action.

We are glad the Director-General of Medical Services has recognised the importance of co-ordinated advance all over the country. But instead of adopting the plan we have suggested, he has announced in his broadcast speech the other day that the Government of India are considering the desirability of appointing a small committee, to be known as the Environmental Hygiene Committee, to examine the recommendations of the Bhore Committee as well as the plans put forward by the Provincial Governments

in their five year programmes of health development and to suggest an integral scheme of organised effort intended to promote a co-ordinated advance over the country as a whole, the Central and Provincial Governments working in close co-operation towards the attainment of the objectives to be achieved. It has been the practice in the pre-independence days, whenever an inconvenient matter was pressed, to appoint a Committee to shelve the matter for the time being. Living as we do next to that never-to-be-forgotten era, and knowing as we do that the Bhore Committee composed also of technical experts has, after a thorough examination of the conditions prevailing in the country, recommended in their monumental report a short term and a long term plan for adoption, it might appear surprising to many that the Government of India should again be thinking of the appointment of another Committee, this time thoroughly expert though in its make-up, which can only mean further postponement of action on the lines recommended by the earlier Committee to the detriment of the interests of the people. But at the same time it should not be forgotten that the plans recommended by that Committee, though comprehensive, all-embracing and effective within the limits ordinarily expected from an enquiry of that kind, did not and could not give consideration to the many auxiliary services such as town-planning, architecture and health engineering which are as important as trained medical and nursing services, and also that the plans of the original Committee involved the expenditure of huge sums of money which the Centre, the Provinces and the States, in the present state of their finances, are not in a position to incur, due to causes some of them of their own making, and many unexpected and beyond their control.

It will be admitted on all hands that environment plays a very large part in the matter of public health, and the present insanitary condition of our towns and villages is very largely responsible for many of the common bowel diseases such as cholera, dysentery, typhoid fever and the like. A planned programme of rapid improvement of sanitation of existing residential areas wherever possible, and their realignment in the interests of public health wherever necessary, and the planning of new towns and villages on lines most conducive to health and well-being, will go a great way in reducing the incidence of preventable diseases which now take a very heavy toll. The carrying out of such a plan not only requires trained personnel, but also legislative powers to enforce it. The country hasn't got now the required personnel to attend to this all-important work, and such a personnel cannot be created in a day. Sufficient number of institutions have to be established to train the required personnel and plans have to be drawn up in this behalf. Also suggestions are necessary to place on the statute book necessary legislation for the purpose. Only a Committee of experts can recommend suitable plan and suitable measures for the purpose. And in view of the hugeness of the finances required to give effect to the plans of the Bhore Committee which the Governments in India are at present not able to provide for, the recommendations of the Committee have again to be re-examined with a view to find out the most important and urgent things and give them priority. It will be remembered that the Director-General in one of his earlier speeches suggested some measures to meet the immediate needs of the situation. We are not aware whether this Committee is intended to set the seal of approval to the temporary plan suggested by the Director-General, or to classify the recommendations of the

Bhore Committee on the basis of priority. But even these will cost heavily, and it is clear from the broadcast talk of the Director-General that it is the intention of the Government to include within the scope of the terms of enquiry of this Committee the finding out of ways and means of raising the sum required to give effect to the urgent or priority schemes. We presume it is the intention of the Government to appoint a Committee of Experts in Public Health and Medical Relief, and while it will be justifiable to include within the terms of reference of this Committee the first two items, we fail to see how this Committee can be expected to find out the ways and means of raising the necessary funds for carrying out their recommendations—they will be least equipped for the task. As mentioned by the Director-General in one of his speeches sometime back, the acceptance, as other countries have done, of the principle that adequate health protection is one of the *national minima* which the citizens have a right to demand from the Government, envisages that the State should make itself responsible for a well-developed health service serving all sections of the community throughout the country, and it is the duty of the Government to find the ways and means to raise the necessary funds to give effect to the recommendations of the Expert Committee. The ensuring of positive health to the people is itself an asset of inestimable value which will bring good return to the coffers of the Government, and we trust that the Government will hasten the process and see to it that all measures are taken to provide for the health and well-being of the people.

Madras Leads

A WELL-DESERVED tribute was paid to Madras by Her Excellency LADY MOUNTBATTEN during her recent visit to Madras. Speaking at the first annual meeting of the Madras Provincial Welfare Fund on the 30th of April last, she said that she felt that this was an important and far-sighted project, an organised general charity for the Province, the only one of its kind in India. The Fund was inaugurated only a year back, and a sum of fourteen and a half lakhs of rupees has been raised within this period, though Madras cannot be called affluent compared with many other sister provinces. The schemes already sanctioned for various districts include Maternity and Child Welfare Centres, Creeches, Dispensaries, a hostel for pupils in the midwifery course, erection of X-ray plants and the purchase of two motor vans complete with medical equipment. The construction of T. B. Sanatoria and the provision of mobile dispensaries are among the schemes pending consideration. The organisation of the Fund on a district, yet provincial, basis has been not a little responsible for the good collections made, for it is bound to encourage the much-to-be-desired feeling among every citizen and villager that this charity is their charity and that the work which it is doing is in their interests.

As rightly observed by Her Excellency, 'In India to-day there is such a vast field of development to be undertaken that it is vital for government resources to be supplemented in every possible way, and this responsibility must be shared by all of us according to our means and abilities. Even if the State were able to carry out every improvement from its own resources, the people would then be the poorer if they forsook the tradition of charity, the greatest quality of civilisation. India has a

great tradition of charity which, for many reasons, has in the past been concentrated chiefly with the family or community. While preserving the old tradition the modern age at the same time calls for a wider spirit of philanthropy guided by the principle of giving wherever need exists and in a patterned way which insures the benefits being evenly spread.'

Nowhere is the need more keenly felt than in the matter of dealing with the scourge of tuberculosis which is taking in the prime of life of the people a heavy toll. It is a sad thing that people diagnosed to be tubercular should be denied the facility of treatment owing to the absence of hospital facilities. During the visit of Her Excellency to the King Edward Tuberculosis Institute, Egmore, the Superintendent had to report with the greatest regret that 563 persons diagnosed to be tubercular had to be placed in the waiting list for admission to the hospital. This number is only from among those who have understood their ailment and come forward to get treatment. But there are many who are unaware of their ailment though they are slowly and steadily eaten away by the germs of this disease. They are not only endangering their own lives, but are also endangering the lives of their near and dear relations who come in close contact with them. It is for this reason that the method of mass radiography has been adopted in advanced countries in the West to detect the sick with a view to segregate them from the healthy. The Superintendent of the Tuberculosis Hospital pressed the need for mass radiography in order to conduct a successful campaign to control tuberculosis. While the Government are doing what is possible in this and other directions, it is possible for philanthropic persons to come forward to help the Fund to carry on this all-important examination. When such examination is made, necessary provision should be available to treat detected cases. While it is a matter for gratification, as DR. LAKSHMANASWAMI MUDALIAR observed at the annual meeting of the Tuberculosis Association, that steps had been taken in this Province far in advance of any other Province, it is not sufficient to meet the growing menace. There must be a systematic method of dealing with tuberculosis, and people suffering from the disease in any part of this Presidency must have reasonable access to a clinic or a sanatorium, hospital or rest-house. The Superintendent of the Tuberculosis Hospital has already submitted a scheme to the Government to establish clinics in all district headquarters and in all big towns with a population of at least 50,000. This is a field in which public philanthropy has wide scope and we trust that the public will come forward to give as much help as they can and thereby not only help the unfortunate victims of the disease but also help themselves in the process.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Paludrine treatment for malaria.—Sir Philip Manson-Bahr, M.D., F.R.C.P.

The epic story of the discovery of paludrine by two British researchers, F. H. S. Curd and F. L. Rose is well-known and its action on *Plasmodium gallinaceum* by D. G. Davey is deeply appreciated, so that we are now in a better position to assess the role it may play in the suppression and treatment of malaria.

Paludrine (N1-p-chlorophenyl-N5-isopropyl-biguanide acetate) exerts an action on malarial plasmodia somewhat different to that of quinine or atebrin. Its effect upon the hypothetical exoerythrocytic stages (E. E. forms) of *Plasmodium vivax* and *P. falciparum* is only equalled by that of *plasmoquine*, but it has the great advantage of being more efficacious and certainly much less toxic.

NO TOXIC PROPERTIES.—Two salts are used, the monohydrochloride and the monoacetate and each is sparingly soluble in water, rapidly absorbed and excreted chiefly in the urine. Paludrine is a bitter, colourless substance, particularly devoid of toxic properties and can be tolerated in doses above those necessary to extirpate the malaria parasites. It is also effective against all species. Its chief virtue lies in curing and suppressing subtertian malaria (*P. falciparum*) and this statement entails the hope that in time it should cause the disappearance of black-water fever, but above all, its main benefit to mankind lies in its prophylactic action.

Paludrine acts most effectively on the asexual forms, but does not extirpate the gametocytes more rapidly than does quinine or atebrin. It acts as schizonticide, especially on the early forms by interfering with nuclear (chromatin) division. It has now been suggested by Marshall that its chief anti-malarial action takes place by inhibiting oxidation processes in the parasites, but that it does not affect the anærobic breakdown of glucose to lactic acid.

Though gametocytes of both *P. vivax* and *P. falciparum*, when ingested by mosquitoes, undergo exflagellation—fertilization, and may even develop into small oocysts, yet further development comes to an end. It has been shown that complete sterilization of the gut infection of mosquitoes results within 1–2 hours after 150 mg. of paludrine has been administered to a carrier.

ORIGINAL INVESTIGATIONS.—The original investigations on treatment with paludrine were conducted in Britain at the Liverpool School of Tropical Medicine by Maegraith and Adams and were subsequently supplemented by those of Fairley and his team at Cairns, Queensland. The dosage has ranged from 5 mgm. twice daily to 750 mgm. Paludrine can also be injected intravenously in doses of 5 mgms. but this method should necessarily be reserved for the more severe cases.

For subtertian malaria (*P. falciparum*) the optimum dosage is 100 mgm. three times daily for 7–10 days, but it is claimed that a single dose of 25 mgm. suffices to suppress the attack. For benign tertian (*P. vivax*) and quartan (*P. malariæ*) large doses are indicated, such as 250 mg. three times daily for the same period.

It is agreed generally that the action of paludrine on subtertian malaria is as satisfactory as that of atebrin, but it does not appear to be as rapid or effective in action, in destruction of the parasites and reduction of pyrexia, nor is it so effective in the severer forms of subtertian fever. It does not extirpate *P. vivax* from the circulation any more thoroughly than does quinine, though a single dose of 100 mgm. suffices to suppress the individual attack.

For instance, Johnstone (1947) has shown that 10-day treatments with 500 mg. paludrine daily does not prevent relapses and that the number to be expected is greater than on a similar *quinine-plasmoquine* course. Another drawback which has lately come to light is the acquired resistance to this drug in chicks infected with *P. gallinaceum* in which paludrine resistance is readily produced in sub-therapeutic doses and that this property can be transmitted by mosquito passage.

PROPHYLAXIS.—As regards prophylaxis we should define the following terms:

(*a*) *Gametocyte prophylaxis*—or prevention of infection by the mosquito on account of the action of drugs on the gametocytes or their precursors in the human body.

(*b*) *Causal prophylaxis*—or the prevention of infection by the human host through the action of drugs on the sporozoites or upon intermediate stages of the malaria parasites in the body.

(*c*) *Suppressive prophylaxis*—or the prevention of development of clinical manifestations of sub-patent infections by the action of the drug on the asexual forms.

Paludrine appears to constitute the ideal causal prophylactic in that it does not prevent penetration of sporozoites into the skin, but destroys the exoery-throcytic forms of malaria parasites.

The dosage is 0.1 gm. daily for 10 days. It is also an efficient suppressive chemoprophylactic in as low a dose as 0·1 gm. once or twice weekly, but is more effective in subtertian than in benign tertian malaria as already stated. It is, therefore, justifiable to recommend prospective travellers to the tropics to take 0·1 gm. paludrine for at least 10 days before entering the malarious zone.—*British Information Service.*

The status of demerol.—William B. Kirtland, Jr., Detroit, Mich. *Alexander Blain Hosp. Bull.* 5 :178-85, November 1946.

Used medically as the hydrochloride, demerol is a colorless crystalline powder readily soluble in water with a neutral reaction and a slightly bitter taste. The piperidine ring is the structural base of demerol as it is of atropine and morphine. Perhaps the atropine-like and morphine-like pharmacologic actions of demerol can be thus explained.

Demerol raises the pain threshold so that 50 mg. intramuscularly is twice as potent in relieving pain as 22 mg. of codeine; so that a dose of 125 mg. approaches the effectiveness of 17 mg. of morphine. Demerol has a distinct spasmolytic effect on smooth muscle of the gastro-intestinal tract and ureter. The drug apparently relieves visceral pain by relaxing smooth muscle as well as by raising the pain threshold. Demerol has a mild sedative effect after large parenteral doses in nonambulatory patients only.

Respiratory depression, urinary retention and constipation are rare when demerol is used. Batterman says, "To date no disease or other medication has been found incompatible with demerol hydrochloride," but evidence has been presented that it may be dangerous in patients with intracranial lesions.

The average adult dose of demerol is 100 mg. either intramuscularly or orally for preoperative, postoperative or nonoperative surgical cases. As a rule it is sufficient to repeat the dose every three or four hours. Demerol in therapeutic dosage is a relatively safe and nontoxic drug. Side reactions are usually transient and give no cause for alarm. Dizziness, nausea, perspiration, vomiting, a choking sensation, momentary excitation, euphoria, dryness of the mouth and urticaria have been noted following the use of the drug.

Tolerance to demerol has been experimentally produced, but no evidence suggesting tolerance to general clinical analgesia has been reported in patients not previously addicted to opiates. Addiction to demerol does occur. With few exceptions, however, it has been seen only in patients previously addicted to the opiates.

When used for preoperative medication, demerol is most effective when combined with scopolamine. For an adult a dose of 100 mg. of demerol and 1/150 grain scopolamine should be administered from fifteen to fortyfive minutes before induction of anesthesia. Clinical experience suggests that demerol when so used will: (1) provide psychic sedation and facilitate induction of anesthesia as does morphine; (2) be more effective in drying secretions and cause fewer toxic reactions than morphine; (3) reduce the amount of anesthetic agent required as does morphine; (4) will not depress respiration or other vital functions as does morphine.

Demerol has been the drug of choice for postoperative medication in the Blain Hospital since August 1945. In our experience, it relieves postoperative pain and restlessness satisfactorily. It does not produce constipation, respiratory depression of urinary retention, and it has few incompatibilities.

Demerol in therapeutic dosage is an efficient analgesic which is relatively safe and nontoxic. Because with its use a closer approach to the normal physiology can be obtained, demerol has definite advantages over morphine for the relief of pain in the surgical patient.—*Quarterly Review of Medicine.*

Urinary symptoms in general practice — Edwin Mathis, M.D.

Contrary to the usual conception, the majority of symptoms such as frequency, dysuria, pain in the bladder, urgency, incontinence, retention and nocturia may occur with a normal urine.

Pain in the bladder and urethra is a symptom of urinary lesions which may be inflammatory in nature as cystitis, urethritis, calculus, or nonInflammatory as new growths (papilloma or urethral caruncle) and vesicovaginal fistula. Frequent and painful micturition may be a symptom of pelvic disorders occurring outside of the bladder. In any of these conditions, the urine may be normal.

Frequency is a common symptom of pelvic disorders, either of the bladder or of the structures close to it. Frequency, without burning or discomfort of any sort, implies a disproportion between the quantity of urine and the size of the bladder. Any inflammatory process in the pelvis or of the bladder, whether bacterial or traumatic in nature, may produce a frequency.

Urgency is a complaint that is met quite frequently in all types of practice, and merely represents an unfulfilled desire to urinate. When most of the people with this complaint void, they pass a varying amount of normal urine. Urgency, *per se*, is a product of civilization that dictates where one must void.

Burning during micturition must be analyzed as to time to aid in establishing a diagnosis. Discomfort in the bladder area, before voiding, suggests that the pathology lies in the urinary tract. Pain or discomfort that begins as the urine is passed and ceases when the constrictor muscle closes suggests disease in the urethra. This may be urethritis from any cause, a urethral caruncle, or perhaps an irritation of the lower portion of the urethra due to irritating vaginal discharges or trauma. Pain in the bladder area, after urination, which gradually decreases or fades until after the next passage of urine suggests a bladder stone or papilloma which irritates the bladder walls as they come in contact with tumour or stone. Cystitis may cause pain when the walls of the bladder come together after micturition and disappears as the urine accumulates and separates them.

Incontinence:— Pathologic incontinence usually occurs, (1) in women who have borne children and have had injury to the sphincter muscle; (2) in women who have a vesicovaginal fistula following either prolonged labor or radiation therapy. Urinary incontinence due to childbirth does not appear at once, but only after months or years.

Urethral caruncle:—This is a condition that can readily be recognized if it is looked for. A caruncle is most frequently found on the posterior wall of the urethra. It is a polypoid growth, usually single, but occasionally multiple, quite friable and bleeds readily. The two confusing conditions which must be differentiated from the caruncle are malignancy and a prolapse of the urethral mucosa. The chief symptoms of a urethral caruncle are painful, often excruciatingly painful urination, a blood tinged discharge, and occasionally painful intercourse. The treatment of the caruncle is cauterization.

Cystitis may be chemical, traumatic or bacterial in origin, but chiefly it is bacterial. It may occur not only from a diseased kidney, ureter or urethra, but also by contiguity from an infected uterine cervix, tubes, ovary or peritoneum.

In acute cystitis, there may be frequency, dysuria, pyuria, bacteruria and hematuria. The diagnosis is not too difficult. The treatment begins in locating the cause. Further treatment consists of bed rest, the intake of 3 to 4 quarts of fluid, alkalinization, sulfadiazine in proper dosage of 40 to 60 grs. daily in divided doses, and when the acute symptoms subside, 30 grs. daily. Sulfadiazine works well in either acid or alkaline medium, but the alkaline medium is preferred to prevent the deposition of crystals. Hyoscyamus, in doses of 15 drops every 4 hours, relieves the pain. If possible, local treatment and instillations should be avoided in the acute stage since they only serve to give temporary relief while forcing the infection deeper.

After the acute stage, 2 to 10% of a mild silver protein or 1 to 2% of a strong silver protein is used. The bladder should be emptied first, and then after the instillation may be irrigated with a warm sterile normal saline solution. Hot douches may be useful in increasing the circulation and bringing relief.

Pruritis vulvae:—While it may be due to actual organic disease, pruritis vulvae is occasionally due to uncleanliness where smegma has accumulated or the urine has become concentrated. This type of pruritis is irregular in appearance, being present mainly in hot weather when much fluid is lost through perspiration. It may be more severe if there is pus, albumen or sugar (diabetic or otherwise) present in the urine. Pruritis is accompanied by redness, swelling and chapping of the skin of the inner aspects of the thighs due to friction, and by signs of irritation of the skin and mucous membrane of the labia.

Treatment, of course, is to increase the fluid intake and thus dilute the urine and to advocate cleanliness and the use of shedding talcum powders or ointments.—*Digest of Treatment.*

Streptomycin therapy.—The committee on therapy of the American Trudeau Society and its sub-committee on streptomycin therapy has, during the past year, carried out a series of therapeutic trials of streptomycin therapy in tuberculosis. The following conclusions and recommendations appear to be justified on available evidence in the opinion of the members of the committee on therapy and the sub-committee on streptomycin therapy.

1. Intensive parenteral and intrathecal streptomycin therapy is advised for treatment of tuberculous meningitis. Although clinical remissions of varying duration are induced frequently by such treatment, subsequent relapse is likely to occur. Residual neurologic disorders are frequently noted, but complete clinical remission may be anticipated in a sufficient proportion to justify treatment of all patients. Early diagnosis and prompt treatment appear to yield superior results; hence treatment must be instituted frequently before complete bacteriologic data are available.

2. Streptomycin therapy is advised for treatment of acute hematogenous miliary tuberculosis. Prompt treatment is necessary if best results are to be realised. Physicians are warned that non-tuberculous pulmonary infiltrations may simulate miliary tuberculosis roentogenographically, and wise clinical judgment is required to identify such lesions. Nevertheless, if treatment of miliary tuberculosis is to be prompt, it may have to be instituted before bacteriologic confirmation of diagnosis is available.

3. Streptomycin therapy is advised for the treatment of more severe cases of tuberculous laryngitis and ulcerating tuberculous lesions of the mucous membranes of the oropharynx. The palliative clinical benefits of such treatment are sufficiently uniform and gratifying to justify trial of treatment even in some instances when the ultimate prognosis of associated pulmonary tuberculosis appears grave. Combined parenteral and topical treatment is suggested at this time, pending more complete information as to the relative merits of these two methods of administration.

4. Streptomycin therapy is advised for treatment of progressive ulcerating tuberculous lesions of the tracheobronchial tree. Streptomycin should not be expected to benefit fibrous strictures of the tracheobronchial passages. Parenteral treatment should be employed in such cases. It is not clear as yet whether results are superior when combined ærosol and parenteal treatment is used.

5. Streptomycin therapy *is not indicated* at this time for treatment of all types of

pulmonary tuberculosis. Most suggestive results are noted following treatment of recent but extensive and progressing pulmonary lesions, especially if these are diffuse and finely disseminated in appearance rather than appearing as large, dense and localised shadows in roentgenograms. However, tuberculous pneumonia should be treated with streptomycin. It is not recommended at this time that such lesions be treated unless the physician has reason to believe that conventional therapeutic methods will not suffice to control the disease.

Streptomycin cannot be recommended at this time for treatment of (*a*) chronic fibroid of fibrocaseous pulmonary tuberculosis, (*b*) acute destructive and apparently terminal types of pulmonary tuberculosis, (*c*) minimal or early moderately advanced pulmonary tuberculosis with favourable prognosis. These recommendations may be modified by subsequent experience especially if the toxic effects of the drug enumerated in paragraph 10 are found to be avoidable. It is important that tuberculosis with favourable prognosis be not treated with streptomycin until the full significance of toxicity and drug fastness is better known or means of avoiding them are found.

It is urged that more extensive and more adequately controlled studies be carried out to determine the possibilities and limitations of streptomycin therapy in pulmonary tuberculosis.

6. Streptomycin therapy is suggested for further trial as a remedy for the symptoms of acute ulcerative tuberculous enteritis. Further experience will be required to define more clearly the eventual results of streptomycin treatment in this disease.

7. Streptomycin is recommended for treatment of tuberculous draining cutaneous sinuses and appears to be highly effective in a large majority of cases, regardless of the underlying disease, except that sinuses associated with tuberculous empyema are less likely to respond to treatment.

8. Streptomycin is not recommended for treatment of chronic empyema of tuberculous origin because of its apparent ineffectiveness in studies thus far reported.

9. More extensive observations will be required to learn whether streptomycin is of sufficient value to justify its use in (*a*) prophylactic treatment before and after surgical procedures, (*b*) treatment of tuberculosis of the genito-urinary tract, (*c*) treatment of tuberculosis of the bones and joints, (*d*) treatment of tuberculosis of the skin, (*e*) treatment of tuberculous lymphadenitis without sinus formation, (*f*) treatment of ocular tuberculosis.

10. Streptomycin, like many other useful drugs, has definite toxic potentialities. Some of these are unique and incompletely understood at the present time. The reactions listed must be kept in mind whenever streptomycin treatment is contemplated and compared with the hazards of the disease which is being treated.

(*a*) A disturbance of vestibular function will be observed frequently, especially following prolonged treatment with larger doses. Partial or complete compensation is frequently noted especially in younger persons, but the potentialities of this disorder must not be underestimated by the physician. It has not been determined if this disadvantage to streptomycin therapy can be overcome.

(*b*) Deafness may be produced in very rare instances and only following large doses or when streptomycin excretion is defective. Useful hearing is nearly always regained if treatment be suspended promptly when deafness is noted. Audiometric observations are probably advisable at this time until the conditions under which deafness occurs are better defined.

(*c*) Serious renal damage produced by streptomycin appears to be observed rarely except when there is pre-existing renal disease.

(*d*) Cutaneous rashes apparently due to acquired hypersensitivity to streptomycin are occasionally observed and sometimes indicate that treatment should be suspended temporarily. It is usually possible to resume treatment later. Serious exfoliative dermatitis is observed very rarely.

It has not been fully determined what the minimal effective therapeutic dose of streptomycin may be, nor is it known how dosage should be modified to secure optimal results in each of the many different types of tuberculosis. It is suggested that the total parenteral dose in twenty-four hours may be from 1 to 2 gm. It is not known how frequently intramuscular injections need be made or how long treatment should be continued. The successful results observed have usually been in patients who received injections at intervals of from four to six hours and for from three to four months. Until further studies have been concluded, it cannot be recommended that injections be made less frequently or that treatment be continued for shorter periods of time.

The disappearance of drug sensitive strains of tubercle bacilli and their replacement with strains which are drug resistant appear to offer a serious handicap to prolonged effective streptomycin therapy. It is not known as yet what conditions encourage the appearance of drug resistant organisms, how frequently this phenomenon appears, how to determine drug resistance accurately or how permanent this change in bacterial flora may prove to be.

Streptomycin treatment should be avoided when other treatments are available because to produce a drug resistant strain of tubercle bacilli by such treatment may possibly make this form of treatment ineffective should a more serious type of tuberculosis subsequently develop.

Extensive studies are under way to define further (1) the possible applications of streptomycin therapy in tuberculosis; (2) the optimal methods of using the drug with minimal discomfort and expense; (3) the clinical significance of acquired drug resistance on the part of the tubercle bacilli and possible methods of preventing this phenomenon from occurring; (4) the combination of streptomycin with other therapeutic drugs; and (5) the toxicity of streptomycin and possible methods of minimising these effects.

The development of an effective antibiotic agent against tuberculosis which is not universally applicable will surely complicate the practice of medicine as it relates to tuberculosis. It will be of increasing importance that tuberculosis be treated by physicians whose knowledge of the disease is sufficiently broad to permit them to choose wisely which patients should assume the discomforts, the risks and the expense of utilising this incompletely explored type of therapy.

Streptomycin alone does not appear to be adequate to arrest those types of pulmonary tuberculosis which are most likely to be treated effectively by major surgical procedures. It is not considered safe to permit streptomycin therapy to substitute for bed rest treatment. It is further recommended that effective streptomycin treatment be followed and supplemented by adequate rest therapy because of the serious risk of exacerbation of the disease process after conclusion of treatment. Such exacerbations may fail to respond to second courses of therapy.

It is emphasised in strongest terms that streptomycin cannot be regarded at this time as a satisfactory substitute for therapeutic methods which are already known to be effective for pulmonary tuberculosis. Hope is entertained that it may be a valuable supplement to such methods of treatment. The need for continued research is most urgent.—*Medical Officer*.

Drugs and treatment of essential hypertension.—Ruskin and McKinley made a critical study of the effects of six commonly used drugs in human essential hypertension. Potassium thiocyanate was compared under similar conditions in 68 patients with five other drugs, including a placebo. The best symptomatic relief was obtained from the administration of a placebo or niacin. Glucophylline, phenobarbital, and mannitol hexanitrate decreased the complaints of fewer patients and increased the symptoms in more cases than the placebo or niacin. Potassium thiocyanate, on the other hand, maintained or increased patient's complaints in almost one-half of the cases, and decreased them in less than one-third. Increase of symptoms undoubtedly occurred more frequently at serum thiocyanate levels above 15 mg. per cent but was also frequent and at times perilous at the more commonly accepted therapeutic levels.

Hypotensive effects were demonstrable in many cases following the administration of all six drugs including the placebo. The psychic calming effects of the physician's care and drug administration have been repeatedly emphasized and thus find further corroboration. All drugs, including potassium thiocyanate, have been followed in some cases by actual rises in blood pressure or no change. Statistically, it has been possible to demonstrate that the thiocyanate period of therapy, when compared with the placebo therapy interval showed significant drops in systolic and diastolic pressures, probably due to thiocyanate administration. Again, the diastolic pressures fell more markedly at serum levels of potassium thiocyanate above rather than below 15 mg. per cent. The authors concluded that further studies were necessary to elucidate the mode of action of potassium thiocyanate, and to determine with finality whether effects of its administration occur at toxic or therapeutic levels.

Other methods in the treatment of hypertension must be viewed with scepticism, particularly in the absence of control observations.

(Ruskin, Arthur, University of Texas Medical School, and the Heart Station of the John Sealy Hospital, Galveston, Texas, and McKinley, W. Frank: *American Heart Journal*, 34: 691-701 November, 1947).—*Medical News Letter*, Jan. '48.

The basic factors of nutrition in old age.—Joseph T. Freeman, Woman's Medical College of Pennsylvania and Doctor's Hospital, Philadelphia, Pa. *Geriatrics*, 2:41-49, Jan.-Feb. 1947.

A review of the pertinent literature on nutrition in old age shows that many problems must be investigated before the definitive diet for the older person can be prescribed. However, definite indications are given by the objective findings in a number of studies concerning anatomic and physiologic changes determined in part by functional tests and chemical analyses. In old age the body operates on a pattern of adequacy. As long as disease or exhaustion does not disturb the achieved equilibrium the smaller capacity and slower action resulting from the physical changes in the gastro-intestinal tract need not impair normal function. Factors which may adversely affect nutrition include oral aspects, impairment of the supplementary supporting voluntary muscles of the gastro-intestinal tract, liver and pancreas modification, reduction in blood supply and changes in nerve supply, and to a minor degree changes in the smooth muscle of the gastro-intestinal tract.

While the quantity and quality of all digestive juices appear decreased in the resting state, on the whole the response to stimulation appears adequate. The decreased secretion of saliva and ptyalin, greatly impairing starch digestion in the older mouth and affecting oral moisture and food lubrication, is offset by an increased pancreatic amylase secretion. Changes in gastric secretion diminish the ability to sterilize and

decrease the bulk of food, but do not affect the gastric emptying time. With pepsin and trypsin secretion lower in the older resting stomach, lipase secretion is low both in the resting and stimulated phases. While intestinal absorption was found slower but complete a possible disparity between it and utilization was demonstrated. The adaptability of the liver and gallbladder was shown by abnormal results of liver function tests encountered in many apparently healthy subjects above 60 years of age. Blood sugar curves showed definite impairment of the utilization phase of the carbohydrate metabolism while digestion and absorption function properly. Difficulty in the absorption of sterols was indicated by higher cholesterol levels. No major changes were noted in the calcium, phosphorus and phosphatase fasting levels but frequent tetanic manifestations indicate the slight margin of calcium reserve and the need for more utilizable calcium. It was shown that the body will react to avoid a disturbance of the essential blood calcium level even to drawing on stored reserves in the bones to the point of osseous impairment. The absence of renal impairment as a necessary adjunct of old age indicates the status of the protein metabolism. In general the studies on vitamin deficiency in old age indicate that when some insufficiency is apparent, in spite of an adequate diet and correction of condition reducing organ efficiency, vitamin supplements are essential. It has been shown that older persons require large doses of vitamin C for saturation.

In view of the available facts, showing continued ability to deal with proteins impaired utilization of carbohydrates and some absolute loss in the capacity to digest fats, a diet high in protein moderate in carbohydrates and low in fat, with vitamin levels higher than average is advocated for the older person.—*Quarterly Review of Medicine.*

SURGERY

Ascorbic acid, thiamine, riboflavin and nicotinic acid in relation to acute burns in man.—Lund and his associates say that although alterations in the metabolism of proteins, carbohydrates and electrolytes following burns have been extensively studied in the past few years, few investigations of possible changes in vitamin metabolism following burns have been made.

The present study is concerned with the alteration in the plasma concentration of ascorbic acid and in the urinary excretion of ascorbic acid, thiamine, riboflavin and N-methylnicotinamide in patients with burns admitted to the Boston City Hospital during 1944–1945. The patients studied were cared for by members of the Burns Assignment of the Surgical Services of the Boston City Hospital. The dietary calculations were made by a research dietitian. All hematologic and routine chemical determinations were made by the methods previously published from the Thorndike Memorial Laboratory. Low fasting hourly excretion rates of ascorbic acid, thiamine, riboflavin, and N-methylnicotinamide together with low excretions of these substances after injection of test doses have been considered indicative of tissue unsaturation. The fasting hourly excretion rates were usually determined three times a week. Vitamin supplements were given orally in the form of ascorbic acid tablets and "multicebrin" capsules. These contain the following in each capsule: Thiamine hydrochloride, 3·0 mg; riboflavin, 3·0 mg.; pyridoxine hydrochloride 1·5 mg.; pantothenic acid, 5·0 mg.; nicotinamide, 25 mg.; ascorbic acid, 75 mg.; distilled natural tocopherols, 10 mg, vitamin A, 5,000 U.S.P. units, and vitamin D, 1,000 U.S.P. units. Vitamins were given intravenously in the form of single or multiple vitamin preparations.

Saturation tests of vitamins were made in the following manner: After a fasting specimen of blood and a fasting hourly specimen of urine were taken, the test doses were given intravenously. Specimens of blood and of urine were then collected at intervals of one-half, one, two, three and four hours.

Among the patients studied there were 4 children with minor burns and two children with severe burns. The adults included 11 with minor burns and four with extensive burns.

The data presented demonstrate that after severe burns there are considerable alterations in the metabolism of ascorbic acid, thiamine, riboflavin and nicotinamide, as evidenced by a low concentration of ascorbic acid in the plasma either with the patient fasting or after saturation tests and low urinary excretion of these vitamins either with the patient fasting or after the injection of test doses. The extent of the abnormalities paralleled the severity of the burn. Patients with burns, minor in extent and superficial in depth, did not show these changes unless there was in addition some complicating factor such as preexisting deficiency, low intake of food or serious infection. In contrast, patients with extensive deep burns invariably showed notable abnormalities. These changes were greatest in the early period following injury but continued in some cases far into the chronic stage. In this respect, the upset in vitamin metabolism parallels the upset in nitrogen metabolism which follows burns.

The authors think that large doses of ascorbic acid, thiamine, riboflavin and nicotinamide are needed by severely burnt patients and that some supplementation at a lower level is needed for many patients with burns of moderate extent.

It is suggested that 1 to 2 gm. of ascorbic acid, 10 to 20 mg. each of thiamine and riboflavin and 150 and 250 mg. of nicotinic acid be given daily to severely burned patients and that the doses may be needed for long periods. However, these vitamins alone will not satisfy the nutritional needs of the patient, which include a high protein, high carbohydrate diet and ample quantities of yeast, crude liver extract (given orally) and vitamin A and D.

(Lund, C.C., Boston, Mass., Levenson, S. M. Green, R. W. and others: *Arch. of Surgery*, 55:557-583 November 1947. The authors are connected with the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) and the Burns Assignment of the Surgical Services, Boston City Hospital—*Surgical News Letter*).

A method of measuring the length of lower limbs in the orthopædics.—Sheng Hsien-Chih, M.D., and Chang Chi, M.B., Ch.B., F.I.C.S., *Chinese Medical Journal*, July-Aug., 1947.—In the treatment of fractured femurs, skin or skeletal traction has been widely employed in surgical practice.

To get good alignment the clinician must strive to restore the injured limb to its normal length, which can be ascertained only by comparative measurement. The usual way of doing this is to measure the distance between the anterior superior spine of the iliac bone and the internal malleolus of the ankle on the same side, with both lower limbs placed in such symmetrical position as is attainable with ordinary clinical judgement. However, this method can never be so accurate as the one described hereunder.

1. Apply a similar Thomas splint to the healthy leg to keep it in a position symmetrical with the injured limb. The splint is usually placed on a series of wooden blocks of the desired height.

2. Keep both knees on the same horizontal plane as ascertained by means of a level resting on a ruler, which in turn lies on both knees. Keep both feet on the same horizontal plane in the same way, with ruler resting on the big toes.

3. Mark with an indelible pencil the midpoint of the upper border of the sternal manubrium, the symphysis pubis, anterior superior iliac spines, and the adductor tubercles of both femurs in a thin subject or the uppermost border of the patellæ in the obese.

4. Let the patient's right hand grasp a protractor with right-angled handle, and fix the handle tightly over the suprasternal notch. The central string tied on the handle should accurately join the mark on the manubrium and that on the symphysis pubis. Tie the distal end to a nail previously fixed on a wooden block, the position of which can be adjusted as desired.

5. Tie the other two lateral strings to the handle of the protractor. Stretch them taut and press them against the marks over adductor tubercles (or patellæ), have them fixed *in situ* by an assistant. Then carefully manœuvre the Thomas splint on the sound side into such a position that the central string bisects the angle formed by the lateral ones.

6. By means of a tape measure one can now proceed with comparative measurements between the marks of the anterior superior spines and of the internal malleolus on both sides, thus determining the actual length of an injured leg.

7. In cases of fractured femur where thick dressings have been applied, a Collin's pelvimeter may be used instead. With this instrument the comparative measurement can be carried out between the mark of the anterior superior spine and that of the adductor tubercle or patella.

It is often stated that to measure the actual length of a broken limb in a Thomas splint is not an easy matter, because the ring is in the way and that it becomes even more difficult in cases where thick dressings are applied around the limb. For cases of femoral fracture the writers find the Collin's pelvimeter to be an efficient instrument to meet such requirements. However, the round tips of the pelvimeter's limbs should be somewhat sharpened in order to get a more accurate measurement. The distance can be easily calculated by multiplying the scale reading with a coefficient factor or by direct reading on any tape measure.—*G.P.*

The gastroscopic differentiation of gastritis from carcinoma of the stomach.—Herman J. Moersch, Mayo Clinic, Rochester, Minn. *Gastroenterology*, 8:284-92, March 1947.

Gastroscopy is of value in the differential diagnosis between carcinoma of the stomach and gastritis. It is not infallible, however, and an error of about 10 per cent occurs in differentiating the 2 lesions. It is better to err toward a diagnosis of carcinoma since treatment will not be unduly delayed.

A frequent cause of error in gastroscopy is an attempt to have the findings correspond to the clinical history. Care is especially needed in evaluating lesions that are covered with secretions, and the stomach should be thoroughly empty to avoid overlooking small lesions. When a gastroscope advances with difficulty once it has entered the stomach, the possibility of a gastric tumor should be considered. In differentiating gastric carcinoma and gastritis, the nodules of the surface of a benign tumor are regular, granular and rather uniform in size, in malignancy they are irregular and variable, and in hypertrophic gastritis the nodes are not so stiff and no solid tumor-like protrusion is observed.

If the diagnosis of gastritis is made because of the character of the mucosa rather than on the presence of folds there is little likelihood of error in the diagnosis of gastritis based on overdistention of the stomach. Stomach distention can help considerably in differentiating gastritis and carcinoma inasmuch as a carcinomatous lesion will not flatten out on overdistention, as may occur in gastritis. A valuable means of differentiation is palpation of the abdomen during gastroscopy. This may bring a lesion into view and help determine whether it is pliable. If it is pliable,

gastritis is usually the cause. Palpation also stimulates peristalsis which aids in the differential diagnosis. It is noteworthy that gastritis and carcinoma of the stomach may coexist.

The type of gastric carcinoma most likely to be confused with gastritis is the limitis plastica in which the lesion may involve the entire gastric mucosa. The greatest difficulty exists when the carcinoma is submucosal in origin, limited in area and there is no tumefaction or ulceration.

Considerable help in differential diagnosis is afforded by radiology. The roentgen signs of gastritis include localized, ragged, irregular hypertrophic mucosal folds or the presence of a wart-like granulation of the relief. A highly indicative sign is the demonstration of mucosal erosions.

—*Quarterly Review of Medicine.*

OBSTETRICS and GYNÆCOLOGY

Penicillin and acute puerperal mastitis.—C.P. Hodgkinson (*American Journal of Obstetrics and Gynecology*, 53:834, May 1937) reports 73 cases of breast infection, most of which developed in the postpartum period, but 7 were not true instances of puerperal mastitis. In the group of typical puerperal mastitis cases, 18 had developed an abscess when first seen; incision and drainage were necessary in 16 of these cases, while 2 cleared up after aspiration. Forty-eight patients were given intramuscular injections of penicillin during the cellulitis phase of the mastitis, and this resulted in complete recovery in every case. The usual dosage of penicillin was 25,000 Oxford units every three hours for seventy-two hours, then 15,000 units every three hours for another forty eight hours. Although symptoms were completely relieved in sixty hours, the full five-day course was usually given. Although penicillin was demonstrated in adequate concentration in the blood of these patients, it was not demonstrated in the milk. If the patients were nursing their infants, lactation was inhibited by the usual methods including the use of diethylstilbestrol. In 3 of the early cases, in which this was not done, there was a recurrence of acute mastitis in the opposite breast in about two weeks. Since lactation has been inhibited routinely, there has been no reactivation of infection after penicillin therapy. Before penicillin became available, 12 patients were treated during the cellulitis phase of mastitis with various sulfonamides, in adequate dosage, but 9 of these patients developed an abscess requiring incision and drainage. The chief objection to penicillin therapy is that it requires hospitalization for frequent injections. To overcome this objection, the oil and wax penicillin preparation of Romansky and Rittman was used in 4 cases of puerperal mastitis, giving one injection of 300,000 units every second day until three injections had been given. The patients were not hospitalized, and the results were as satisfactory as with the three hourly injection method.—*Medical Times.*

The management of ovarian tumours complicating pregnancy.—H. C. Falk and I. A. Bunkin (*American Journal of Obst. and Gynecology*, 54:82, July 1947) report 12 cases of ovarian cysts complicating pregnancy, 7 of which were dermoids and 2 of these bilateral. If an ovarian cyst is discovered early in pregnancy, oophorectomy can be safely done under inhalation anesthesia, preferably cyclopropane. As the ovary involved may contain the corpus luteum of pregnancy, it is best to delay operation until the placenta has "superseded" the corpus luteum, about the sixteenth week. If, however, some complication develops, such as torsion of the pedicle or impaction of the uterus below the pedicle, early in pregnancy, operation must be done promptly; in such cases, progestin is given before operation (at least 5 mg. intramuscularly each day.) In 4 of the authors' cases operation was done by or before the sixteenth week of pregnancy. In one of these cases operation was done at five weeks because of signs and symptoms of torsion of the pedicle; bilateral tumors were discovered and removed, the patient made a good recovery, and was seven and a half months pregnant at the time of this report. In the other 3 cases, operation was done at sixteen weeks: all of these patients were delivered spontaneously at term. In one of these cases bilateral dermoids were present; oophorectomy was done on the right side and resection of the cyst on the left side In the second trimester of pregnancy, operation is indicated as soon as the diagnosis of ovarian tumor is made. None of the authors' cases reported belong in this group. If an ovarian cyst is discovered at or near term, delivery from below may be possible if there is no obstruction. Occasionally if the cyst causes obstruction, placing the patient in the knee-chest or Trendelenburg position may result in dislodging the tumor into the abdomen. If the tumor is immobile, elective cesarean section with removal of the tumor is indicated. In 4 of the authors' cases, elective cesarean section, with removal of the affected ovary, was done at forty weeks. One of these patients died postoperatively, the other 3 made a good recovery, but one of them with dysgerminoma of the left ovary shows "questionable enlargement" of the right ovary one year after operation. If the first symptoms of torsion of the pedicle develop post partum, immediate operation is indicated. Four of the cases reported were of this type. In one of these cases in which premature labor had been induced, the patient died of generalized peritonitis; in one, there were bilateral dermoid cysts, one of which had ruptured, with peritonitis at the time of operation; this patient's convalescence was "stormy," but she finally recovered. In the other 2 cases, recovery was uneventful In general in pregnant women, the removal of the ovary involved is indicated; this is always true in cases of solid tumor; dermoid cysts, if bilateral, may be "shelled out," leaving small amounts of ovarian tissue.—*Medical Times.*

OPHTHALMOLOGY

Problems concerning convergence.—Verhœff, F. H., *Tr. Am. Acad. Ophth.*, pp. 15-19. Sept.-Oct., 1947.

If each eye moved independently, bifixation would be a simple matter if and when it became advantageous, and a special convergence mechanism would be unnecessary. The two eyes move precisely together as though mechanically connected, though the exact manner of the operation of this function is practically unknown. When an eye is directed downward and inward by the conjugate mechanism without the help of convergence, it undergoes relative extortion. When the inward movement is produced by the convergence mechanism, the eye undergoes intorsion. Convergence is, therefore, accomplished by the internal rectus muscles together with reduced innervation or inhibition of their antagonists An eye can move further inward by conjugate action than by convergence After maximal symmetrical convergence has been obtained through bifixation of an object in the midline, one eye at a time can be turned still further inward by carrying the fixation to the left for the right eye and vice-versa for the left, while bifixation is still maintained. Convergence is more restricted than conjugate motion because the convergence mechanism has only the internal rectus to turn an eye whereas the conjugate mechanism has in addition the help of the other ocular muscles, notably the superior and inferior rectus muscles. The other factors involved are: insufficient inhibition of the external rectus and the utilization of two different physiologic mechanisms, each with its separate muscle fibers and/or innervation.

Convergence is primarily involuntary although more or less voluntary control is frequently acquired, but is not used in ordinary vision. Convergence can seldom be disassociated from accommodation. The convergence necessary for bifixation is normally accomplished through accommodation, distance sense, and disparateness of the fixation object images. These factors cannot be completely disassociated. The deviation of an occluded eye when viewing a distant object through a concave lens and proves that accommodation causes convergence. The distance sense hampers the convergence effect of accommodation because the fixated object continues to appear distant. The effect of nearness can be demonstrated by looking with one eye occluded at a near object through a convex lens which prevents accommodation. The occluded eye converges, but far from enough, although the convex lens makes the object appear nearer than it actually is.

When the convergence effect of accommodation is the same for each eye separately, it is probably also the same when both eyes are used. This is not true for the distance sense because the distance of the near object does not appear the same with one eye occluded as with both eyes open. The effect of disparate images can be studied with a stereoscope or with two dots on a card. When these approach each other by convergence, or relative divergence, with strong attention the two images unite and stay united without effort on the part of the observer. Thus the effect of accommodation or distance sense on convergence cannot be completely nullified.

Conscious concepts of depth are not produced by disparate images but unconsciously there may be depth perception which is associated with convergence or divergence. Binocular fixation is inversely proportionate to the image differences and in very near vision produced by efforts of accommodation and distance sense. In ordinary vision, convergence is involuntary and is produced partially by a sensory factor which is entirely subconscious.

Perlia's nucleus is involved in convergence but its method of function is not understood. Apparently it equalizes stimuli to the internal rectus muscles. Perlia's nucleus is apparently connected with the probable centers of pupillary contraction and accommodation. The association between convergence and accommodation is, generally speaking, hereditary and not acquired. In many patients with convergence strabismus since infancy, accommodation causes increased convergence. There is apparently no divergence center.—Chas. A. Bahn. (*A. J. Ophth.*).

DERMATOLOGY

Subacute and acute disseminated lupus erythematosis.—In cases of lupus erythematosis in which low grade fever, leukopenia, and urinary findings persist unchanged for many months the administration of quinine or bismuth may bring about immediate improvement or complete remission. Quinine, although mild, must be started with great caution, ½ gr. orally t.i.d., increasing gradually up to 2 gr. t.i.d. It seems to bring relief prolong life even in the acute course, but it does not prevent exacerbations forever. Bismuth has to be administered with even greater caution as it may effect activation and it is contraindicated in the acute form of the disease. However, if given during a remission it prolongs these periods. Sodium bismuth tartrate 0·03 Gm. is given 2-3 times weekly for 6-8 weeks or bismuth subsalicy.

late 0·1 Gm. once a week. The white count and urinary findings must be watched closely. Gold salts are absolutely contraindicated in the acute form. Penicillin in exceedingly large doses may prove effective.—Stephen Rothman, M.D., and Zachary Felsher, M.D., *Medical Clinics of North America*, January, 31:198-212, 1947.

Correspondence

The Treatment of Measles and Its Complications

To The Editors, THE ANTISEPTIC, Madras.

Dear Sirs,

I found it a pleasure to go through "The treatment of measles and its complications" written by Dr. P N.S. Maniam and published in the April '48 issue of THE ANTISEPTIC. I appreciate one particular suggestion put forward by Dr. Maniam and consider it very significant. Frankly speaking we have nothing specific for the treatment of measles and have yet to find out a remedy that can be relied upon with reasonable certainty. For the time being therefore we have no other alternative but to focus our attention to the tried antibiotics that are at our disposal. What I mean is the administration of Penicillin. I have used Penicillin in six consecutive cases of measles this season. Before I mention my experiences in respect of Penicillin usage, I should like to refer to one particular point. Although no age or sex is exempt, it has been the experience of many, if not all, that measles occurs mostly in children. All the six of my cases, however, were adults ranging between the ages 18 to 22 years. I do not know if the filterable virus in these cases of measles was of a different strain to account for the affinity to infect the adults.

I started using Penicillin in my cases of measles by accident. The first case that came under my care was a girl aged 20 years. The patient had a "bad throat" and was a chronic sufferer from tonsillitis. She came to me with the complaint of malaise, slight pain in the throat, with a low temperature from the morning of the day she attended my clinics. I found both her tonsils enlarged and deeply congested. The pharynx had granular infiltrations and congested. I also felt an enlarged, painful lymphatic gland over the right mastoid bone. She had a temperature of 99·6°F (axillary). The patient said that she was to appear at an examination after eight days. Naturally she was very anxious to check any illness that might disable her from appearing. She had no manifestations of acute "cold" and from the clinical picture I had no reason to suspect the attack of measles. I therefore prescribed an alkaline mixture with 2 tab. (1 gm.) Sulphadiazine at 4 hourly intervals. On that day she took 2 doses of the mixture and 4 tab. of Sulphadiazine. Next morning she came quite happy and satisfied. She had a temperature below normal. The pain in the throat was totally absent. There was no change however of the swollen lymph gland. I advised her to continue the alkaline mixture and 2 tab. Sulphadiazine every 4 hours upto 4 doses of the mixture and 8 tab. Sulphadiazine. The day passed off smoothly and she was afebrile. At about noon next day she had a sudden rise of temperature to 102°F. By this time she had consumed 16 tablets (8 gm.) of Sulphadiazine. There was no marked change of the tonsils and the throat to account for the rise of temperature. As I could not afford to waste time, I took a slide for M.P. No parasite was found and the differential count showed polymorphonuclear leucocytes 58%. This low polymorphonuclear count reflected upon my treatment and I decided to discontinue Sulphadiazine and switch over to Penicillin. I therefore started administering Penicillin Sodium (crystalline) according to the dosage scheme suggested and practised by me (*Ind. Med. Gaz.* Vol. LXXXII, Nov. 1947). I gave her one hundred thousand units dissolved in 2 c.c. of redistilled water intramuscularly at about 2 p.m. The next dose of one hundred thousand units was given at 8 p.m. Three more doses on the next day at 6 a.m., 12 noon and 8 p.m were injected. There was no impression on the temperature Next morning, i.e., on the fifth day, rashes of measles appeared on the forehead and the cheeks. Still, knowing fully well that the virus of measles was not susceptible to Penicillin, I carried on Penicillin administration morning, noon and early part of the night with the hope of preventing respiratory complications. The temperature rose to 104°F and remained stationary up to the last injection at night. By the afternoon the rashes were profuse over the whole face, the neck, the upper part of the chest gradually diminishing towards the extremities. Next morning, i.e., on the 6th day the temperature dropped to 99°F and the rashes were faint over the forehead and the cheek. It struck me at once that this dramatic change must have been brought about by Penicillin. I therefore continued the administration as on the previous day and also directed my attention to the diet. During all these days she was kept on liquid diet. I pressed her now to take toast with butter, biscuits, milk, smashed potato, orange juice and plenty of fluids plain or with dextrose. The temperature gradually rose to 102°F in the afternoon and remained at that level for only an hour and by nightfall it touched normal. The eruptions over the face and the neck were almost invisible. Desquamation was absent. The skin looked glossy and healthy. The next day, i.e., the 7th day of illness, was a disquietening one. The patient started liquid stools with plenty of mucous. The evacuations were not of course of alarming proportion being eight in number from the morning till night fall. In spite of this digestive disorder, I decided not to change the diet and took the risk of feeding on the same lines so that the patient might maintain strength. I ventured to take such a bold step as my impression was that the passage of loose stools with mucous was a natural sequence of the measles rashes in the gut and was not infective. The free allowance of food also had a great psychological effect on the patient. Only two injections of Penicillin (morning and evening) were given on this date. No attempt was made to stop the motions by administration of drugs. The position was that the treatment had not only to be directed to the recovery of the patient but was also a race with time. On the day of the examination the patient was afebrile and had only two semi-solid motions with small quantity of mucus. She had not the slighest trace of the eruptions anywhere in the body. The following days were almost uneventful. The digestive disturbance gradually improved and full diet was allowed within two days. During this period the patient had a mild attack of gingivitis. Warm salt water gargle, painting the gums with Boro-Glycerine and vitamin C tablets 2 tab. (100 mg.) thrice daily orally relieved her completely. The lymph gland over the right mastoid became of normal size and painless.

Since attending this case, I have had five more cases of measles, 3 males and 2 females. Two of these cases presented Koplik's spots and I had no difficulty in arriving at a definite diagnosis, sufficient time ahead. All the cases presented typical premonitary symptoms pointing to measles. In these cases, Penicillin was injected right from the start. On the first day three hundred thousand units divided into three equal doses, morning, noon and early night: second and third days, the same: then reduced to two for one or two days: and finally one dose for a single day before withdrawal. No Sulfa group of drugs was employed in any of these cases.

The series of cases treated was very small and I cannot surely claim a definite conclusion. But my impression is that Penicillin (1) prevents respiratory complications and possibly other complications arising from Penicillin sensitive organisms; (2) cuts short the duration of high temperature; (3) causes the rashes to disappear quickly without disquamation; and (4) hastens convalescence.

I hope therefore that my friends in the profession should conduct trials to assess the value of this antibiotic and give a definite shape to my observations.

Yours faithfully,
A. C. DEY, L.M.F.,
Formerly Senior Resident Medical Officer, Ashtanga Ayurveda Hospital, Calcutta.

4/B, Benode Saha Lane, Calcutta 6.
24th April 48.

A Case of Rabies after 34 years

To The Editors, THE ANTISEPTIC. Madras.

Sirs,

Will you kindly allow me space for observations on the case reported in your journal of June, 1947 (p. 400) and commented upon in December, 1947 (p. 844)?

It certainly was not a case of rabies resulting from a bite inflicted 34 years previously, for the following reasons:—

(1) 2 children bitten by the same dog at the same time, 34 years ago, died instantaneously. Rabies does not develop and kill instantaneously.

(2) The patient was bitten again by a stray dog, 5 months prior to his death. The bite though slight could have given rise to rabies.

(3) The disease the patient died from has by no means been proved to be rabies.

Yours faithfully,
S. D. S. GREVAL,
Late I.M.S.

Calcutta,
1st April, '48.

Book-Reviews

A Practical Text Book of Leprosy—By R. G. Cochrane, M.D.CHT. F.R.C.P. (Lond.), D.T.M.H. (Eng.), Medical Secretary, Mission to Leprosy, Principal, Missionary Medical College, Vellore. Lately Chief Medical Officer, Lady Willingdon Leprosy Sanatorium, Chengleput. S. India. 1947, pp. 283, profusely illustrated. (Oxford University Press, Madras). Price 42 Sh.

If there is one disease of which both patients and doctors alike "are afraid of" and "shun", it surely is leprosy. This is mostly due to many wrong notions that exist amongst the laymen and doctors about this disease. Dr. Cochrane's book is meant to correct their impressions and to put before the medical public the most modern and scientific aspects of leprosy. With an enormous experience and with plenty of clinical material at his command Dr. Cochrane has produced a very practical book which has the stamp of originality and authority in every chapter of the book. The chapter on epidemiology clearly upsets and corrects many prevailing notions of the infectioners of the disease. In the chapter on diagnostic tests Dr. Cochrane states that the Lepromin test is neither a diagnostic nor a therapeutic test. The subsequent chapters on classification and technique of examination, atypical lesions and differential diagnosis are all well written. Dr. Cochrane has devoted a number of chapters for the treatment of leprosy, of neuritis in leprosy, of eye,

nose and throat lesions and of trophic ulcers. He thinks that there is no disease which calls for more ingenuity in the matter of treatment on the part of the physician than leprosy. He warns doctors not to use such drugs like Promine and Diasone until they have been extensively tried under adequate experimental conditions. He states that the sheet anchor of all treatment is Hydnocarpus oil and its derivatives. In the chapter on criteria of discharge and after care, he gives valuable suggestions. In discussing the prevention of leprosy he is of opinion that the two most effective methods of leprosy control are segregation and treatment of infective cases and the prevention of child leprosy. In the last few chapters he discusses the practical methods of leprosy control as proposed to be done in the Madras Presidency. A very useful and comprehensive bibliography is given at the end of the book. Beautifully printed in art paper, with a large number of illustrative photographs and illustrations, it is without doubt the most practical and useful book on leprosy. We congratulate the author on his bringing out this excellent work and recommend it to all medical practitioners and leprosy workers.

Operative Gynæcology—By H. S. Crossen, M.D., and R. J. Crossen, M.D, 1948, 6th edition, revised and reset. 999 pp., 1334 illustrations excluding 30 in colour, C. V. Mosby Co., St. Louis. Price $ 15·0.

This book was first intended to be a work exclusively devoted to a description of operative treatment on gynæcological work —the technique of the various operations, the difficulties likely to be encountered, the indications for operation and the choice of operative procedure. For this purpose non-operative description of the various diseases is not given. The present volume follows this principle first laid down thirty years ago by the senior authors. The various chapters deal with such well-known and common troubles such as myoma of the uterus, cancer of the uterus, pelvic inflammation, ovarian tumours, prolapse of the uterus, and genital fistulæ. The chapters on preparation for abdormal operations, after-treatment and anæsthesia in gynæcologic surgery are all well written. In all these, detailed descriptions are given of the various operative procedures and techniques and of the indications for operative treatment. Most of these descriptions are accompanied by copious illustrations which make the descriptions very clear. The general get-up of the book, the printing and the coloured illustrations are very good. The authors deserve our congratulations.

Skin Manifestations of Internal Disorders—By Kurt Weener, M.D., 1947, 690 pp. with 386 illustrations, and 6 colour plates, C. V. Mosby Co., St. Louis. Price $ 12·50.

Before the advent of modern diagnostic methods, the clinicians were perhaps better able than the present generation, to read diagnosis and prognosis from the skin—an art which has not had the necessary attention at the hands of modern doctors. To make a survey and present the knowledge in this field in a book form is the object of the author. He has however not included in this book the subject of syphilis, allergy and nutritional disturbances of infancy as excellent monographs on these subjects are available. The skin manifestations of systemic infections, of intoxications, of disorders of endocrine glands, of metabolic disorders, of disorders of blood and blood-forming organs, are well described. The whole subject is treated in a new manner and is viewed in a new angle. Much useful and valuable information is available in the book. It is well printed and got up, has clear and beautiful illustrations and has a good appendix giving in a comparative tabular form details of such conditions as acute exanthems, diffuse pigmentations and hæmorrhagic diseases. The book ought to be read by dermatologists and general practitioners alike.

Medical Practitioners and Sales Tax

The Government of Madras have passed the following order, G.O. No. 815, dated 7-4-1948.

1. The Government have examined the representations made by the Madura Medical Association, Madura and the Indian Medical Association, Madras, in regard to the assessment of private medical practitioners to Sales Tax. There are three categories of medical practitioners, namely :—

(*i*) those having consulting rooms only : These are not liable to Sales Tax as they give prescriptions only and do not dispense medicines.

(*ii*) those owning dispensaries and dispensing medicines only to their patients : Though these practitioners are legally liable to Sales Tax, the Government direct that they may be exempted from the payment of the tax.

(*iii*) those having large dispensaries and dispensing medicines not only to their patients but also to the patients of other practitioners and also sell patent medicines to the public :—

These should be treated as any other Chemists and Druggists and should be assessed to Sales Tax.

2. The Board is requested to issue necessary instructions in the matter to the Commercial Tax Officers.

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Original Articles

Iliac Abscess*

MAJOR D. KANAKASABHESAN, M.S., F.R.C.S., (E.),

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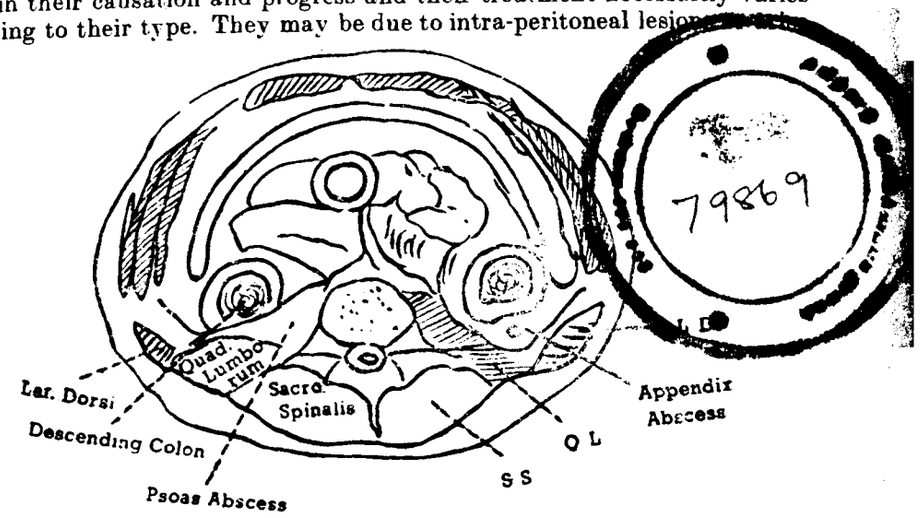
ABSCESSES in the iliac region are common in surgical practice and give considerable difficulties in treatment. They show an extreme divergence in their causation and progress and their treatment necessarily varies according to their type. They may be due to intra-peritoneal lesion



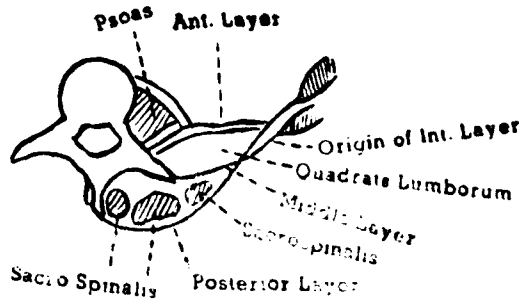
—From *Beasley and Johnson Surgical Anatomy.*

from extra-peritoneal causes and be confined to the tissues outside. Extra-peritoneal lesions usually arise either in connection with the parieties of the anterior abdominal wall or more often from the posterior abdominal wall

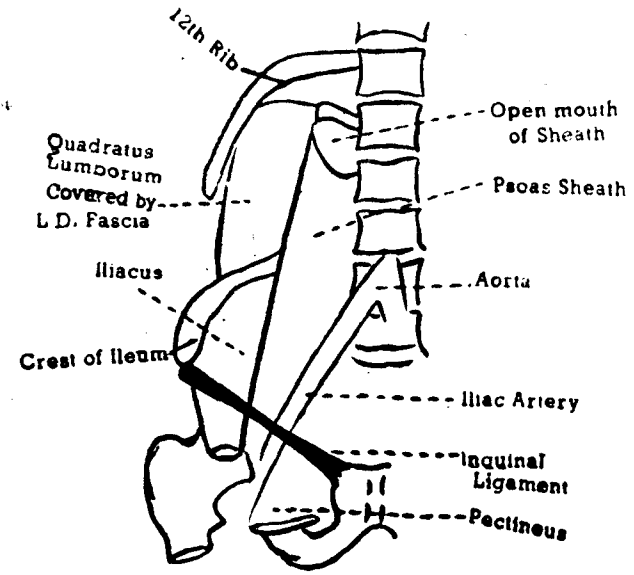
* Specially contributed to THE ANTISEPTIC.

and the bones of the pelvic girdle. They may also arise in connection with extension of infection from the sacro-iliac, the hip and the ilio-lumbar joints. These, however, are not common. The intraperitoneal lesions may arise in connection with any of the abdominal viscera in the lower abdomen or pelvis, the most common one, being, however, the appendix, vermiformis.

For a rational understanding of this subject it is essential to know the anatomical landmarks clearly. Abscesses in this region are determined by the disposition of the psoas, iliac and lumbar fascia. The fascia covering the psoas thickened above to form the internal arcuate ligament, and stretching from the transverse process of the first lumbar to the body of the first or second lumbar vertebra is medially attached to vertebral bodies and intervertebral discs by a series of fibrous arches; but laterally above the crest of the ileum, it becomes continuous with the fascia over the quadratus lumborum, and below the crest with the fascia covering the iliacus.



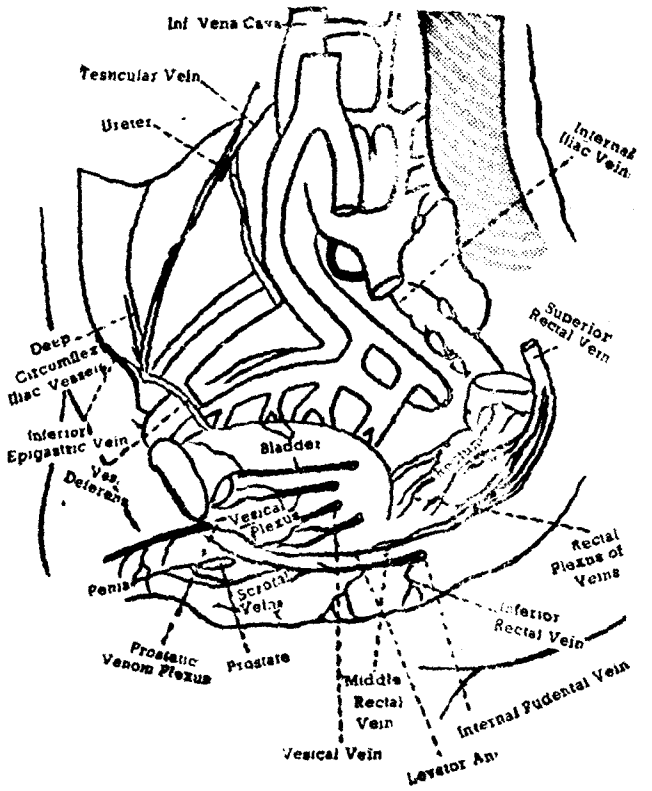
The fascia iliaca is attached laterally to the inner lip of the iliac crest in its entirety and medially to the brim of the true pelvis where it blends with the periosteum; it is also attached to the ilio-pectineal eminence. The external iliac vessels lie in front of it, the lumbar plexus of nerves behind it and it is separated from the peritoneum by the extraperitoneal tissue. Inferiorly, lateral to the external iliac vessels, the fascia iliaca becomes adherent to the fascia transversalis, both being attached to Poupart's ligament; the inner portion is prolonged downwards into the thigh behind the femoral vessels to form the posterior wall of the femoral sheath.



—From *John Fraser*: '*T. B. Bones and Joints in Children.*'

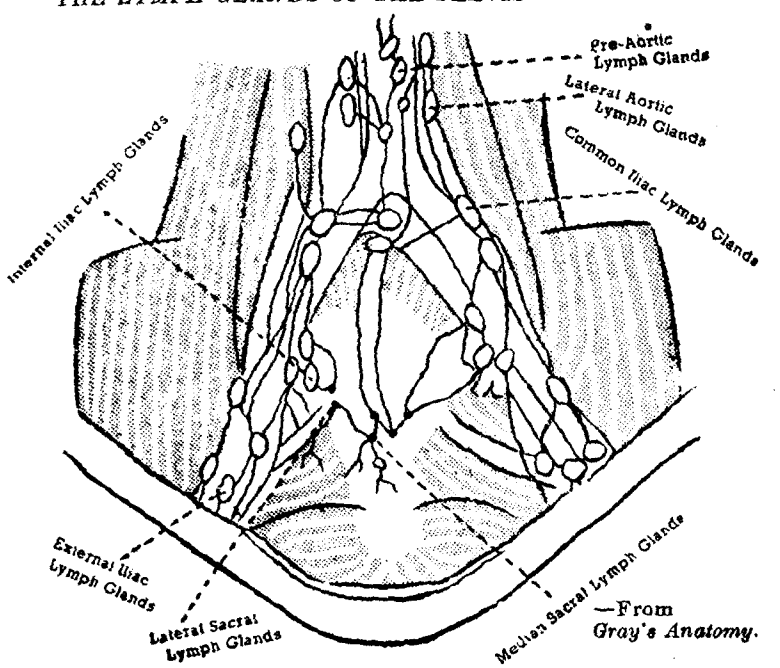
The ilio-psoas muscle acting from above, flexes the thigh upon the trunk and produces a slight degree of medial rotation on the femur; acting from below it bends the trunk and pelvis forwards as in raising the trunk from the lying down posture.

Blood vessels.—The deep circumflex iliac artery with its accompanying veins and lymphatics, ascends obliquely to the anterior superior spine and behind the inguinal ligament, in a sheath formed by the junction of the transversalis and iliac fascia; there it anastomoses with the ascending branch of the external circumflex; the artery then pierces the transversalis fascia and passes along the inner lip of the iliac crest to its middle where it pierces the transversus muscle and runs backwards between it and the internal oblique to anastomose with the ileo-lumbar and superior gluteal arteries.



THE LYMPH GLANDS OF THE PELVIS

Lymphatics.—The external iliac lymph glands 8 to 10 in number lie along the external iliac vessels and are disposed in three groups, one from the lateral side, one on the medial side and the third in front of the vessels. They receive the efferents from the inguinal gland, the deeper layers



—From *Gray's Anatomy.*

of the abdominal wall below the navel and the deeper parts of the adductor region in the thigh and also from the penis, urethra, prostate, bladder, vagina and cervix. The inferior epigastric and circumflex iliac lymph glands are the outlying members of this group.

We may now proceed to a consideration of a classification of these abscesses:

I. Chronic (tuberculous).

II. Acute (1) from injury to soft parts and infection.

(2) From the infection of the lymph glands, from specific or non-specific causes.

(3) Inflammatory diseases of the neighbouring bones chiefly, the ileum.

(4) Extension of inflammation from the neighbouring joints, hip, sacro iliac or ileo lumbar.

(5) Extension from the adjacent abdominal cavity, into extra-peritoneal tissue, from appendix, caecum, terminal ileum, ilio-caecal mesentery and pelvic viscera.

(6) Extension of inflammation from perinephric and periureteral tissues and lastly,

(7) Occasionally from a guinea-worm infection.

I. **Chronic tuberculosis abscess.**—Abscesses arising from this cause are chronic and may track down from the thoracic region, entering the psoas sheath through the open mouth of the psoas stocking, or they may arise from the lumbar region and point here. These abscesses are usually insidious in their onset and therefore attain a fairly big size, before they are spotted. They are noticed in the routine examination of patients with locomotor disabilities, flexion deformities of the hip or general wasting debility. The detection of a primary focus of trouble in the spine makes their diagnosis easy. They are treated on conservative lines. Absolute rest in bed in the supine or hyperextended position with weight extension for both the legs for a prolonged period will cause most of these abscesses to subside. They may however have to be aspirated under all aseptic precautions and repeated at a few days interval; in any event these are not to be treated by open operation. Even if operated, the abscess should not be drained after evacuation; the wound must be closed and immobilisation and conservative treatment carried on. If, however, there is any doubt about their diagnosis X-ray examination of the spine and bacteriological examination of the aspirated pus will render their diagnosis clear.

II. **Acute abscesses.**—Whether they arise in connection with the anterior or posterior abdominal wall can easily run down stripping the fascia iliaca and transversalis and tend to come up about the level of the anterior superior spine and above the lateral part of the inguinal ligament.

From here the abscess, if untreated, may further extend downwards along the great vessels; it may either track down into the thigh along the external iliac and come to the surface opposite the saphenous opening; or may follow the internal iliac into the pelvis and open by the side of the rectum or through the great sciatic foramen.

1. *Traumatic abscess.*—Injury resulting from a rotational strain in children while at play or in adults while trying to raise the trunk against

resistance from a lying down posture as in miners and workshop mechanics, frequently produces a rupture of some of the muscle fibres of the ilio psoas; more frequently, however, there is only a sub-fascial rupture of the thin walled vessels leading to a hæmatoma. The hæmatoma produces a tender lump with rigidity and spasm; it may resolve with rest and fomentations. Occasionally, however, the hæmatoma gets infected from the blood stream and a gradually increasing tender lump in the right iliac fossa results; the signs are obscure; the lump feels very hard and fluctuation can probably be very seldom elicited as the abscess is deeply situated and there are several layers of big thick muscles which become boarded and prevent proper examination.

2. *Filarial lymph adenitis*:—Frequently seen in this province, sometimes ends in suppuration. It is often associated with a minor degree of strain. The subjects, however, have probably been in poor health and may have a septic lesion elsewhere, *e.g.*, whitlow, boils, or middle ear disease, etc. Similarly infection from the scrotum and the groin fold, as ringworm, scabies, etc., may also lead to suppuration in the external iliac lymph glands particularly those accompanying the deep circumflex iliac vessels.

3. *Acute abscesses* may also arise in connection with osteomyelitis in the pelvic bone, notably in the ileum; these usually perforate the thin bones and may reach the surface either lateral to the posterior superior iliac spine under cover of the gluteal muscles or may burrow upwards from the intra-pelvic aspect and come up above Poupart's ligament.

4 *Rarely suppuration* in connection with the hip or the sacro-iliac joint arising from pyogenic infection, may also burrow upwards from the pelvis and rise up into the iliac region or may gravitate downwards and burst in the ischio-rectal fossa.

Intraperitoneal abscesses particularly from lesions of the verniform appendix may point externally above the lateral half of the inguinal ligament or in the loin, and with these abscesses by the time they reach the surface, protective adhesions have formed walling off the general peritoneal cavity.

5. *Perinephric abscesses* may burrow downwards and forwards between the abdominal muscles and find their exit on the anterior abdominal wall in the iliac region.

6. *Guinea-worm* abscesses are also occasionally met with in this region, particularly among Bhisthies and water carriers, who carry water bags or pots in their waists, in parts of India, where guinea-worm infection is prevalent.

Symptomatology.—After a short prodromal stage of malaise and stiffness in the region of the hip, traumatic cases start with fever and general constitutional disturbances. At the onset, the local condition is missed on account of the severity of the general symptoms. After a few days, however, pain in the region of hip and the flexed attitude of the limb are conspicuous. Any attempt at straightening the limb will be resisted. Careful examination will reveal no true limitation of actual hip movements even though extension and external rotation are restricted and painful. There is no shortening of the limb or raising of the trochanter above Nelaton's line. Similarly disease of the spine could be excluded. The true condition can be suspected if a careful palpation of the hip and pelvis is done. A

fairly hard ill-defined indurated lump above the lateral half of the inguinal ligament in a febrile patient who keeps the limb on one side flexed and rigid, is indicative. Occasionally the temperature is deceptive; while the patient looks ill, wasted and has a muddy sallow complexion, the temperature may be normal but the pulse rate is increased. Blood examination reveals an increased W.B.C. count, the polymorphos preponderating. A rectal examination may reveal a pelvic abscess associated with the lump above in the iliac region.

In cases of appendicular origin or filarial suppurative lymph adenitis, the history is different. Here, we have to depend for diagnosis on the history, the mode of onset and an exclusion by systematic examination, of the spine, hip, etc., to reveal the cause. It is exceedingly important to rule out a tuberculous origin and in all doubtful cases X-ray confirmation and aspiration of the pus, with bacteriological examination should be obtained before treatment is determined. It is surprising to see how many cases are missed and treated by the general practitioners or physicians for two or three weeks before the surgeon is consulted.

Treatment.—The treatment for an acute abscess is surgical drainage as early as the patient's condition will permit. It is wasteful to wait for the results of chemotherapy or penicillin administration; when once pus is diagnosed nothing but prompt surgical drainage will cure the condition. Penicillin and chemotherapy may be useful before suppuration has commenced. Surgical drainage gives prompt relief and when once free drainage is established chemotherapy and penicillin are superfluous.

Operation.—Prior to operation, a careful examination of the patient to determine the type of anæsthesia he will stand, should be done. If exceedingly anæmic and dehydrated it is advisable to give a transfusion and choose a *comparatively safer anæsthetic*. General inhalation anæsthesia with gas and oxygen is quite safe. An incision running obliquely downwards and inwards, a finger's breadth below and medial to the anterior superior spine is made. The fibres of the external oblique are split, and the internal oblique and transversalis are divided. At this stage, there may be one or two small vessels which may require ligature. The fascia transversalis is exposed. The dissection is then carried, close to the anterior superior spine on the outside. A tentative thrust of the sinus forceps will enter the abscess cavity. The opening is enlarged with forceps and the cavity is drained by a large drainage tube and external wound left entirely open. If the abscess is prolonged downwards into the thigh, a second opening below the anterior superior spine, along the curve on the outer edge of sartorius, should be made. After operation, it is advisable to keep the limb straight by light skin traction. The drainage tube should be gradually shortened and withdrawn; too early removal of drainage tubes will lead to pocketing. The superficial tissues tend to heal up quickly and so it is necessary to see that the wound heals up from the bottom.

Some of the abscesses are very big and where there has been a considerable delay in establishing a surgical drainage, the protein loss is considerable and so a liberal high protein diet and iron therapy are indicated during convalescence.

104, Lloyds Road,
Gopalapuram, Madras.

Wound Healing as Nature Would Require it*

HARI. I. RAISINGHANI, L.C.P. & S., (Bombay.)
S. Medical Officer, Anti-Malaria, Bhusawal, E.K.

Introduction.—The subject 'Wound healing' as a whole covers up not nly infected wounds but even the nonspecific pyogenic infections; their erminology is a long trail but the medical term mostly fits in with the site nd the tissue affected irrespective of the invading organism. *Vice versa* s generally the case in chronic abscesses, *e.g.*, T. B. abscesses.

As the body defence mechanism—a natural phenomenon—the reparative process, the general principles to be followed in the progress and follow-up of the wound or the infection remain mostly the same irrespective of he tissue of the body involved. It shall suffice to deal with the subject in general form as to the causative organism and to follow the line of treatnent best suited to the credit of the medical profession in particular and to he relief and benefit of the sufferer in general.

Surgery in the 18th century as practised in the West.—Before the age of antiseptics and aseptic surgery, the horrors that were perpetrated under the name of surgery should better not be stated. Just imagine when an anæsthesia was unknown—patients had to be forcibly restrained during the procedure; hæmostatic forceps were not in existence, and operation wound, in absence of the knowledge of asepsis, proved no better than an accidental or war wound in respect to infection and prognosis and when the surgical fever, toxæmia and the sepsis were the accompaniments as a rule, the fate of an unfortunate sufferer should better be imagined than described. Formation of pus was so common a consequence that even those operation wounds which never went septic did produce pus which was termed 'laudable pus' because it didn't produce sepsis. It was never realised then that the wounds got infected from without due to the entry of dust, dirt and the organism on account of uncleanliness and nonsterilisation.

Theory of micro-organism proved.—Spallanzani's experimental evidence that spontaneous generation did not exist, was tackled and confirmed by Pasteur whose conclusions were that the external agencies were responsible for the fermentation and amongst them dust and dirt were the main miscreants. In the light of Pasteur's provings, Lord Lister, the pioneer of 'Aseptic operative surgery' introduced the use of antiseptics and he fully sterilised his hands, the operative field, the swabs and the dressings and in fact the very air before he started performing operations; and behold! his operations were a great success. It then subsequently proved beyond any shadow of doubt that the wound healed up without formation of pus 'laudable' or otherwise if the polluted air, dust and dirt on hands, instruments, aprons, swabs and the dressings were sterilised and made aseptic and the organism attenuated.

Discovery of organism by the aid of microscope and invention of antiseptics.—No doubt Lord Lister's contribution was a great stride in the domain of surgery. It led to an early and uneventful healing of an operative wound, but having realised that the bacterial invasion from without was the cause of infection, as a rule (once the continuity of the skin was

* Specially contributed to THE ANTISEPTIC.

either broken or the tissue got damaged as in war wounds or accidental wounds) the microscopical study and the close and careful observation of the nature, the habit and the cultural growth of the organism and the study of the bacteriostatic or the bactericidal power of chemical agents both *in vitro* and *in vivox*, further led to the discovery of the first rate antiseptics and the chemotherapeutic agents. Further still, the almost synchronous discovery of anæsthesia and antiseptics transformed surgery and it has now become a scientific procedure, beautiful in its detail and beneficial in its results.

This theory of bacterial infection was then applied to nonspecific infections, such as abscesses, carbuncles etc. It was observed that the bacteria termed 'pyogenic' caused an inflammatory reaction in the tissue which sooner or later resulted in the liquefaction of both the tissue and the exudate, thereby leading to suppuration and formation of pus.

An abscess.—The localised collection of pus in the tissue is termed an abscess which may either be acute or chronic. When the suppuration diffuses itself infiltrating widely it is termed as cellulitis. It should, however, be realised that local suppuration is only one manifestation of the activity of the pyogenic bacteria—remote and serious pathological effects on vital tissues may be caused by the toxins of these organisms, and the generalised infections such as septicæmia and pyæmia are the result of the same casual agent that causes localised suppuration.

Now the bacteria which is the source of infection in the human body are omnipotent and omnipresent. They find a lodgement in various openings of the body, in the alimentary canal and even in the skin but in the healthy body they do not find suitable conditions for continued growth and are soon destroyed; but when the general vitality of the body is lowered, they may persist till they are in a position to invade an area which is suitable for their growth. There they develop and give rise to pathological effects.

To sum up be it said that the auto-infection that results into suppuration or an infection that occurs in an inflicted or an accidental wound could only be caused by an organism which is pathogenic.

Immunity and susceptibility.—Under ordinary circumstances every human being is constantly exposed to infection due to the presence of bacteria everywhere within the system and outside it. Nature has therefore provided in the body itself some potent natural means of resisting the attack of these organisms. It is only when these means break down or are insufficient that infection occurs. This natural power of resisting the invasion of micro-organisms which is quite inherent in the constitution of every living being is termed 'Natural Immunity' as against 'Acquired Immunity' *i.e.* an immunity which an individual acquires in his life-time through previous attacks of infections or by means of an artificial inoculation. If an individual lacks the resistance power against certain type of organism, he is said to be susceptible to the said organism.

Mechanism of immunity in general.—That an attack of invading organism should successfully be warded off by the body in general, a defence force should ingest and destroy the bacteria by the process of phagocytosis, bacteriolysis etc., or be able to render them harmless by producing antidotes to neutralise their toxins.

Bacterial chemotherapy.—In the process of immunisation, the success of vaccines, antitoxic serums and antibacterial sera, set the research scholars and the organic chemists to find and synthesise a compound which will exert a specific physiological effect in raising the vitality and growth of the phagocytic defence force of the body and in creating such circumstances as will interfere with the physiology of the invading organism when it is used locally and comes into direct contact with the infecting organism. This is the fundamental conception of chemotherapeutic substance. When the chemotherapeutic success of Prontosil in streptococcal infection was first reported, it was supposed that this sulfonamide was a specific for that organism but it was soon discovered that the Prontosil or the thousand other derivatives of the sulpha group, that are in existence to-day, besides their selective action on one or the other type of organism, do produce some inhibitory effect on almost all different types of organisms. That is the real reason why drugs of sulpha group are in most frequent use to-day, both in surgery and in medicine. The therapeutic beauty and value of sulfonamide is further enhanced by its power of combining and thereby inactivating the toxic proteins, when the same is administered internally or parenterally, with the result that it is not only one of the ideal antiseptics when used locally but it is a safe and sure remedy to check and inactivate the circulating toxins in the system if they have spread, and also inhibiting the growth of invading bacteria by reaching the infected area through blood stream.

To sum up, an antiseptic or bacteriostatic substance is one which will inhibit bacterial proliferation and activity, a disinfectant or bactericide is one which kills bacteria. The same substance will often exert either action according to the degree of concentration and the conditions under which its action occurs. These chemical antiseptics are many; but while selecting an antiseptic it should be noted that its action *in vivo* for the organism it is meant to inhibit, is the maximum while the concentration in which it is being used is non-injurious to the health and being of the individual concerned.

It is generally conceded to-day that the aminosulfonamide needs no transformation to be bacteriostatic, it *per se* being the active form, both *in vitro* and *in vivo* without any harmful effect. But every invention or a discovery has had its day. There is no limit to perfection. Often it is found that what was thought to be marvellous in the field of research a decade back, is now only an achievement which has carried us one step further to develop and perfect the same still further, and that is why the research scholars and the bio-chemists did not stop with the synthetisation of chemotherapeutic agents that we find in plenty to-day in the sulpha group of bacteriostatics. To-day the surgeon is as familiar with the antibiotics, specially the 'Penicillin' brand, as he is with his knife.

Antibiotics and their working.—To put in the words of Sir Alexander Fleming: "There are substances produced by living bodies which have the special property of killing or interfering with the growth of micro-organism. It was Pasteur and his colleague Joubert who in 1877 first described this phenomenon of bacterial antagonism. Pasteur did not pursue this subject; if he had gone on with it, who knows but that we might have had Penicillin in the last century." After noting conspicuous inhibition of growth in a colony of staphylococcus contaminated by mould Fleming, in 1922, discovered an antibiotic which he designated 'Penicillin.' The successful isolation of

Penicillin, the clear cut proof of its clinical usefulness, its assay and dosage are credited to Howard Florey. Ultimately Penicillin was brought forth in a crystalised form by Roberts in 1937. Its clinical trial was, however, made during the last war in 1941, and the results were dramatic. They were specially more gratifying in war surgery. Quite apart from its physical and chemical properties which hamper its preparation and administration, it has its limitations; but fortunately, the sensitive group includes the majority of organism that a surgeon has to find in his day's practice. Penicillin, being more active and much safer in use, is a better prophylactic agent than sulfonamides against the common pyogenic and anærobic infections. In war surgery almost all the dangerous pathogens are Penicillin-sensitive and if a suitable Penicillin concentration is maintained in blood, they are inhibited or destroyed by the combined effects of the drug and the normal body defence mechanisms.

How we are following nature :—In the present age of chemotherapeutic agents and antibiotics many of the growths, inflammations or even threatening abscesses which needed surgical intervention only, are now most successfully aborted and checked by timely administration of the Sulfonamides or Penicillin in sufficient dosage as per requirement of the case or as the success in treatment warrants: Just for example, buboes groin, mastoid inflammation, boils, growing abscesses or even attacks of appendicitis do no more now require surgical intervention all at once; they now are in the first instance a physician's concern and not surgeon's straight away as used to be the case in the past.

In Homœopathy, when there is an inflammation or a boil that threatens to grow into an abscess, Sulphur 30 is given internally to abort it but if it fails and there is neither amelioration of the symptoms or any signs of its absorption Heper Sulph. is given to hasten maturation and then Silicia is prescribed to burst the ripe abscess and finally to heal it as well. Before the advent of chemotherapy and antibiotics, the very idea of administering minute doses of homœopathic medicaments to abort and absorb the growth was phoo-phooed and this kind of cure scantily respected. Any cure of a case, supposed to be surgical, if brought about by an adminstration of medicine internally was safely bypassed as a fluke of luck or as an exception. But now it has been realised that the natural forces and the inherent body defence mechanism can work miracles if only the surgical skill is utilised to aid and facilitate the task of Nature by timely intervention and by doing only as much as nature would have done it if it were allowed to run a normal and natural course.

Oriental method very much akin to nature :—Before I go further, a word about the oriental method of dealing with a wound infection and treating an abscess (in particular) of different types and combating the concomitant general constitutional disturbances, shall not be out of place. Though this oriental method of tackling surgical affections dates from antiquity and looks unhygienic and unscientific yet the very fact that the method (however out of date it appears to be) is still in vogue, gives us a clue that there is much in it that can be adopted to enrich the medical science in the surgical sphere.

Presence of 'Psora' :—When there is a contused wound or any injury which may be accidental or inflicted by hand, it does not mean that the body is diseased; but when the signs and symptoms appear in the form of itches, boils or the like affections, it means the presence of 'Psora' in the

system; that is there is an internal derangement and the external manifestations only present the diseased picture of the interior. So it is the undoubted presence of 'Psora' in our system that lowers the resistance of the body, depletes the body defence mechanism in particular and invites the bacteria to invade the system which has been made suitable for their growth. The virulence of the bacteria depends upon the nature and kind of the strain, the presence of the growth factor (essential metabolite) and the soil it gets into (*i.e.* susceptibilty of the individual); and the state of virulence is made manifest by clinical signs and symptoms local as well as constitutional.

The pathogens that we are concerned with are the pyogenic organism and the commonest among them are the staphylococcus pyogenes aureus and the streptococcus pyogenes which are the source of inflammation, suppuration, cellulitis and abscess formation, and also the source of infection in the surgical and war wounds. The detection of the organism and the subsequent discovery of the chemotherapeutic agents and antibiotics have helped us immensely to combat the infection in surgical practice, yet it is the way of approach and timely adoption of the right treatment that brings into repute the surgeon's skill.

In the days when the Western allopathic medicine was but in infancy, and the practice of surgery, worth its name, hardly known, the surgical practice (supplemented by internal drugging in the form of decoctions) that was being practised here in India then, was to aid natural means of body defence and to treat surgical diseases symptomatically. This old form of Indian surgery, though crude in its application, is still the commonest amongst rural areas. It is the general belief of mofussil folk that an abscess, wound or a carbuncle, if it is incised and managed by an allopathic surgeon, is bound to take a longer period to heal apart from the comparatively high expenses that it entails. Now in this atomic age when science is progressing by strides, this sort of queer notion is either an index of ignorance or there is possibly some flaw in the Western method of surgery. The follow-up of the Indian method of treating the surgical diseases shall give us the clue as to how best we can treat the surgical infections to the credit of both the Oriental and the Western medicines and to the advantage of the sufferer in general.

Oriental surgery :—When there is a patch of inflamed tissue indicated by redness, pain, heat, swelling and tenderness—such swollen areas being hot and brawny, certain kinds of poultices or fomentations *e.g.* mud poultice, 'kesu phool' fomentations are applied to abort it if an inflammation is in the preliminary stage of development which often is not the case. The sufferer in India is neither trained to take advice or the treatment as a prophylactic measure, nor it is within the means of the poor patient to consult the doctor for the ailments which are supposed to be trivial in the first instance. So one of the following poultices or the combination of either of their ingredients, is applied hot over the patch to stimulate ripening of an abscess on the one hand and to check it from extending any further and to relieve pain on the other hand.

Kinds of poultices :—(1) Linseed and wheat flour cooked in bitter oil or 'til' oil in form of a paste; (2) Amylum, Borax, cane sugar, charcoal (wood or animal) cooked in lasi (curd) or in milk; (3) 'Gugur' mixed with soap froth and applied cold (without heating); (4) 'Gah-pat' a kind of grass pounded with pestle in mortar or cooked in oil; (5) An application of

antiphlogistine which is rather a costly affair. (For my part I use the second recipe which has, as a rule, never failed in my surgical practice).

Formation of abscess:—By these methods suppuration is hastened and pus is formed—the centre becomes soft and elastic whilst superficial œdema appears to be on the increase. When abscess is fully ripe, fluctuation becomes the characteristic sign of the presence of fluid though the very appearance and elasticity of the above lying skin, too, gives a definite clue to pus formation and there is definite amelioration of the signs and symptoms that arise in the process of inflammation. The fully ripe abscess, then, tends to point at the centre (it being the softest and the weakest spot) as a rule, and bursts. There is neither a big tear nor it is too small. The opening is in proportion to the size of an abscess quite sufficient to discharge its contents. There is, however, every possibility of its closing down if the opening is not kept patent by some manual device. Besides, nature, if left to itself, takes its own course which rather appears to be protracted. For it is the aim of nature not only to discharge the pus that has collected but also to liquefy the dead and the necrosed tissue and to evacuate the contents wholesale before completely healing it with the least possible formation of cicatrical tissue (scar). Apart from the consideration of time-length, patient's resistance power, the constitutional disturbances in the form of high fever, toxæmia etc. and general depleted condition of the body and also the agony and the excruciating pain at the abscess area are criterions for incising the abscess early to relieve the patient from agony of pain, toxæmia and other sequelæ if any, and to hasten quick healing as well. This job of handling the surgical cases is, to date, being done mostly by skilled barbers who are renowned in the antique type of surgery. Though the barber-surgeon of to-day has grown wiser than his predecessor in a sense that he has discarded the barbarous instruments of his own and has adopted the surgical knife, probe, the surgical gauze and the lint, yet he has remained true to the cult of his predecessor and the way he cuts and treats with his crude form of medicines remains the same.

Method.—When there has developed a frank abscess, Tr. iodine is applied and small but sharp cut is given—whatever the contents could come out are drained off and then tiny pieces of sugar-cane, soaked in warm bitter oil are pushed into to liquefy the dead and necrosed tissue; and if the base of the abscess is found hard and inflamed a poultice of 'bukan' (a kind of grass) or of the kind is applied both to foment and to suck the contents of the abscess over which it is applied. The results are much more encouraging. In much shorter time than is expected in a case where big incision is given and the gauze wick introduced, the flaps of the wound fall back and the wound heals up quite quickly and very satisfactorily, leaving behind a small and practically an imperceptible scar. But before this sort of practical surgery, if toxæmia or any other constitutional disturbances are detected, decoctions of 'Chireta', 'Pahir', 'Pabirwal', 'Neem' leaves or other like things are internally administered to purify the blood and to enrich the defence force.

The Western surgery as it was taught to us in our student days, and its practice as I learnt it under eminent surgeons, believes in long and wide incisions and in ruthless cutting of the carbuncles, and ischio-rectal abscesses in particular. But now when I compare my present results with those I used to get in the Civil Hospital, Karachi, I am of the firm conviction that it should be the endeavour of every surgeon to help the natural

phenomenon in wound healing as best as he can specially when he is now fully equipped with the knowledge of sulfonamides and antibiotics and is well versed in the technique of aseptic surgery.

To score a victory in the surgical field, the aim of the surgeon should be to follow certain fundamental principles that are very nearly akin to 'Nature's Working' in the process of wound healing and also to keep himself abreast of the surgical knowledge, both theoretical as well as practical. To that end, following is the line of treatment that I have found successful in the surgical practice for the following reasons:

Requirements.—(1) To avoid any possibility of contamination no water is used in preparing an antiseptic lotion. The best antiseptic lotion is Acriflavine 2% in methylated spirit or Mercurochrome 4% in methylated spirit; (2) Mag. Sulph–(finely powdered); (3) Sulphanilamide (sterilised powder) M. B.; (4) Tr. Iodine: (5) Ethyl Chloride spray; (6) Hypodermic syringe and Novutox 2% solution; (7) Scalpels, bistuary, and scissors; (8) Probe, sinus forceps, dissecting forceps and a few artery forceps; and (9) Gauze, cotton and bandages.

An acute abscess

Fundamental principles	Line of treatment	Reasons
General.—1. Thorough search to find out source of infection to be made.	Having found out the cause, try to remove it and build up body defence force in general	If the source of infection is successfully removed, the chances of its general spread and of blood poisoning are definitely decreased.
2. Look for the constitutional disturbances such as toxæmia, malaise etc.	Treat constipation by means of light purgation and push in drugs of the sulpha group orally or even parenterally as the condition of the case warrants. Or if so required inject 'penicillin' in sufficient doses to maintain the required blood concentration to check the virulence and to attenuate the infecting organism and also to fortify the defence force.	If the patient is toxæmic, it means the blood is poisoned with the circulating toxins which are an index of virulence of the infecting organism. And in absence of toxæmia or severe constitutional disturbances the very development of an abscess indicates the presence of 'psora' in the system therefore any derangement in the excretory system should always be attended to forthwith.
Local.—3. Complete and thorough sterilisation of an abscess area and its surroundings should be aseptically performed. This I call 'Surgical toilet.'	Wash the part clean with acri-cum-spirit lotion. Allow it to dry, and then paint the abscess area with Tr. Iodine. Cover the surrounding area with sterilised towels.	On the principles of Lister's aseptic surgery, it is the strict observance of the 'surgical toilet' that destroys the lurking bacteria on the spot and cleanliness and the daily toilet check any possibility of contamination of the wound.
4. If an abscess is superficial and ripe for incision, a short but sharp cut is to be given under ethyl chloride spray. If an abscess is deeply situated, proportionately a bigger and deeper incision is to be given.	In a superficial abscess the weakest and glistening spot should be frozen under ethyl-chloride spray and the incision made. In a case of deep abscess the most dependent part should be selected and novutox solution is injected along the tract which to be incised before giving a cut.	Nature also would do its job very well if it is allowed to take its own course; but if the same results could be achieved by an early and timely intervention by properly aiding the natural phenonmenon, it shall relieve the patient from agony and suspense, and assure early and easy amelioration of the signs and symptoms, manifested by the abscess.

An acute abscess—*contd.*

Fundamental principles.	Line of treatment	Reasons
5. The liquefied contents are pressed out and the gauze wick introduced to keep the wound open to drain off the contents.	Generally in a superficial abscess there isn't much of the necrosed tissue or a dead debris. A gauze wick soaked in 'Mercuro cum spirit lotion' is, therefore, to be introduced to drain off the discharge.	When the pus is drained off, and there is neither the dead debris nor the base is indurated the healthy flaps fall back and a few more dressings heal up the abscess wound leaving behind a scar which is just perceptible.
6. If base of the abscess is hard and necrosed tissue is in abundance, as is usually the case in a deep abscess, certain poultices and liquefying agents are to be used.	To evacuate the abscess wound, a wick of gauze dipped in a paste of equal parts of Mag. Sulph powder, Sulphanilamide and mercuro cum spirit lotion, is to be put in to liquefy the dead tissue to facilitate easy and complete drainage.	This method of liquefying the necrosed tissue is not only convenient to the surgeon but in no way embarrassing to the patient as well. Besides the healing takes much shorter time. Just as sugar-cane (used in the oriental method of surgical practice) liquefies the dead tissue by its hygroscopic property the use of 'Magsulph cum Sulphanilamide powder' which is soaked in Acri cum spirit lotion to sterilise it, not only liquefies the necrosed tissue but also stimulates serous exudate and thereby increases the number of phagocytic cells which in turn ingest the bacteria that remain behind. Apart from it the presence of Sulphanilamide and Acriflavine in spirit make the powder an ideal antiseptic.
7. The poultice, 'Recipe No. 2', is of immense help both to foment and to suck the liquid contents out of the wound cavity.	The recipe No. 2 or the like preparation is to be applied hot over the incised area to suck the liquid contents *via* the wick of gauze that is introduced in the beginning. If the base is found hard and inflamed, the poultice needs must cover the whole abscess area.	The fomentation stimulates brisk circulation in the wound area and replenishes the defence force locally; and the sugar cane sucks the discharge while the charcoal absorbs it.
8. When there is no more discharge of pus and the serous exudate only comes out, the gauze wick must definitely be discarded.	The Mag. Sulph cum Sulphanilamide is no more required. The cavity should be filled in with mercurochrome in spirit and elastoplast dressing applied over it.	When the necrosed tissue and the debris have come out in toto and there is only serous exudate, which is sticky in 'feel' and yellowish white in appearance, the wound rapidly but firmly heals up by granulation owing to the antiseptic and growth accelerating property of the serous exudate.
9. As the serous exudate goes on diminishing, the 'elastoplast' dressings should be put off to longer interval.	It should be noted that only a few such dressings suffice to heal up a superficial abscess. The same is applicable to a case of deep abscess too, after removal of dead debris in toto.	The less you interfere with the 'Working of Nature' and the more you concentrate in aiding the natural phenomenon, the less is the trouble and the time taken in wound healing and more gratifying and successful are the results.

Carbuncle

Fundamental principles	Line of treatment	Remarks
1. Look for the cause. Generally it is common in diabetics.	To check the effects of diabetes, insulin injections are to be given as per requirement of the case. Besides certain tonics are also needed to recoup general health.	Insulin is to aid digestion of sugar whose presence in the circulating blood indicates lower vitality and the resistance power of the body in general.
Sometimes the general run down condition of the body in old age is responsible for development of a carbuncle.	In such cases Liver extract, Vitamin B complex or the like preparations help a good deal in toning up the nervous system and increasing the vitality in general.	By these means there is definite improvement in health and vitality—a custodian of defence force.
2. A carbuncle always appears in the form of hard, inflamed, painful, and angry looking lump with tiny pores on its surface and beneath them lies the necrosed tissue. Often it appears in a big lump.	At once start applying any of the poultices morning and evening bearing in mind that the lump should get soft and the pores should increase.	The application of hot poultice increases the local blood supply by means of fomentation and tries to disintegrate the necrosed tissue into sloughs.
3. To hasten the softening and disintegration of the dead and necrosed tissue which fills the carbuncle in entirety, local autohæmotherapy advantageously combined with penicillin is to be given.	Take diluted penicillin 30,000 units (for an adult) in a 20 cc. syringe and draw in it 5 to 10 cc. of patient's own blood, mix the contents of the syringe by tilting it up and down and then inject a little along the margin of its (carbuncle) base all round it. This should be done twice a day (morning and evening). Besides cover the patch with Mag Sulph. powder, sterilised in acri cum spirit, lotion, and apply over it elastoplast firmly.	This sort of treatment soon coalesces the different pores and separates the dead and necrosed tissue into chunks of sloughs. Besides the penicillin by its antibiotic action increases the resistance power.
4. When the necrosed tissue has disintegrated into sloughs no time should be lost in removing them by a pair of scissors and a dissecting forceps.	Every morning after attending carefully to the 'surgical toilet', the chunks of sloughs that have very nearly separated should be cut out and removed. Under no circumstances the necrosed tissue which is still firm, should be forcibly cut off.	Daily removal of loose sloughs shall allow the remaining firm dead tissue to separate quickly under the combined action of Mag.Sulph and 'penicillin with autohæmotherapy', and shall leave behind a clean and healthy granulating base.
5. When the sloughs have come away and there is the clean and healthy bed, the further line of treatment should be exactly the same as in the case of an abscess which has been cleared off all pus.	If the sloughs have entirely come away or there are hardly any, stop putting in Mag. Sulph powder. If there is any discharge of pus the dressings should be changed daily. But as soon as the carbuncle base is cleared off from the necrosed tissue and there is nice and clean bed of healthy granulating tissue the time interval between two dressings should be consistently lengthened.	If the Mag. Sulph is continued after the sloughs have come away it shall impair the vitality of an underlying healthy tissue and if it is still continued it shall damage the tissue itself.

Infected Wound

Fundamental principles.	Line of treatment	Remarks
1. The accidental wounds and the inflicted wounds are, as a rule, infected by bacteria due to nonsterilisation and unclean surroundings.	The war wounds form a separate entity and they, therefore, belong to the province of a military surgeon. In accidental or the inflicted wounds an attempt should be made to wash the wound clean with mercuro cum spirit lotion to keep it sterile. If there is damaged tissue it should be removed forthwith.	A very careful attention and the utmost cleanliness and asepsis are required to free the wound from dust, dirt and the invading bacteria. If the case comes quite early avoidance of sepsis should be the aim of the surgeon.
2. In a case of recent injury always ascertain if the wound has been contaminated by dirt. Also look for the signs and symptoms of sepsis.	If there is any suspicion of contamination of the wound by street dirt, inject antitetanic serum at once. If there are signs of gas gangrene inject antigas gangrene serum and in that case the wound is first washed with H_2O_2 morning and evening before doing any dressing. If the case comes late and the wound is seen in septic condition and there are constitutional disturbances as well make free use of the chemotherapeutic agents and the antibiotics as condition of the case warrants. Wash the wound twice, *i.e.*, morning and evening with the lotion and put in Sulphanilamide powder and dress. The twice dressing should be continued till the copious 'pus discharge' has considerably decreased and the foul smell has disappeared.	These measures are necessary to avoid after troubles in any form. If the chemotherapeutic agents or the antibiotics are not used in time, the bacterial proliferation and the circulating boxing in patients blood, prove more than a match for the usual attempts of sterilising the wound and curing the case
3. Having successfully sterilised the wound and checked the sepsis, the line of treatment becomes very simple.	As the wound gets cleaner and starts healing, bathe it with the lotion and cover it with elastoplast.	Once the wound has cleared up, the only precaution to be taken is to keep it aseptic and the rest shall be achieved by Nature, 'The Master Surgeon!'

Surgical wounds.—The present day surgery is immune from sepsis and hence their follow-up needs no special attention provided all is well on the surgical front. If however sepsis has intervened due to some break in the strict observance of asepsis (often it is unintentional) due to carelessness, the line of treatment is, then, exactly the same as that of an infected and the septic sound.

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Sympathetic Ophthalmitis*

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IT is a specific bilateral inflammation of the eye, affecting the entire uveal tract. The ætiology of the condition is not definitely known. The onset of the disease is insidious. It progresses with periods of exacerbations and has usually a disastrous termination. The disease appears in the injured eye (exciting eye) at a variable time after injury, and shortly afterwards affects the sound eye (sympathising eye). The clinical and pathological picture in both the eyes is identical.

As regards the historical aspect of the disease, it appears that it was Mackenzie who in 1835 gave a masterly and comprehensive clinical description of the disease and he named the disease as Sympathetic Ophthalmia. Later on it was Prichard who in 1851 advocated the excision of the diseased eye as a therapeutic measure, but Critchett in 1863 however proved that excision of the diseased eye was quite useless, once the disease spread to the other eye.

The incidence of the disease is getting rarer, owing to improved technic in the surgical treatment of wound of the eye.

Sex incidence shows a great preponderance of males. Young people are more susceptible to the disease.

Predisposing causes.—Quite a number of conditions may be responsible for exciting sympathetic ophthalmitis. Of these the most common are perforating wounds (especially when the foreign body is retained within the eye), which amount to some 65% of the cases, operative wounds are responsible for another 25% while the remaining 10% are made up of cases which follow non-perforating contusions with scleral rupture, perforating corneal ulcers and intra-ocular tumours. It is very rare for the inflammation to arise without the rupture of the globe. Similarly suppuration in the injured eye is rarely followed by the sympathetic inflammation of the sound eye.

The interval between the injury and the onset of inflammation is of importance and in general it may be said that the period between the 4th to 8th week is dangerous. Its chances of development after 3 months are few but the possibility of its incidence exists indefinitely.

ÆTIOLOGY.—No definite ætiological factor has been known so far. A number of theories have been put forward but only two of them need be mentioned.

I. Infective theory. II. Allergic theory.

I. **Infective theory.**—1. The clinical behaviour and the pathological study suggest the possibility of a bacterial infection; but no bacteriological confirmation has resulted so far, in spite of many researches. The nature of the organism, its route of entry in the exciting eye and the method of attacking the sympathising eye are quite unknown. The possibility of infection by the tubercle bacilli has been suggested, owing to the granulomatous nature of the inflammation and its general resemblance to tuberculosis.

* Specially contributed to THE ANTISEPTIC.

Guillery (1924-'35) introduced capsule containing tubercle bacilli and other toxins in the vitreous of rabbits and produced uveitis resembling sympathetic inflammation with a similar involvement in the other eye. From this he concluded that the disease is the manifestation of the activity of the tubercular toxin rather than the bacilli itself, acting along with the catabolic products of the tissue destruction liberated by trauma. However his work has not been confirmed, in so far as the human eyes are concerned. It has not been possible to show that a similar reaction occurs in man also.

2. *Virus infection* :—This is the possible alternative cause, as suggested by some workers, and there appears to be sufficient ground to accept this view. Many of the recent workers have observed a peculiar phenomena associated with the sympathetic ophthalmitis, that of developing meningitis, with symptoms of headache and deafness and with an increase in the lymphocytes in the C.S.F.

In sympathetic ophthalmitis, therefore, we notice infiltration of lymphocytes, both in the uveal tract and C.S.F. So the condition is more or less a lymphocytic uveo-meningitis caused by a filterable virus, as yet of unknown origin.

II. **Allergic theory**.—A passing reference may however be made about this theory, as the probable cause of sympathetic ophthalmitis, because recent work in this direction has not given much support. It was Elschnig in (1910-'11) who first advocated this theory with the belief that the uveal pigment, liberated as a result of injury, acted as antigen and when absorbed, it disseminated into the whole eye, thereby making it hypersensitive leading to inflammation. This theory has not found much support and the consensus of opinion at present centres round the theory of infective origin especially that of virus.

Thus having dealt with the ætiology of the disease the question arises as to how the infection lights up the injured eye. The older view is that it is exogenous, presumably conjunctival and finds the portal of entry at the perforating wound. On the other hand, the recent school of thought believes that the infection is endogenous and that the fact of trauma and the consequent impairment of vitality of the tissue are sufficient to localise the organisms already circulating in the blood, resulting in the inflammation of the injured eye.

The route of infection from the exciting eye to the sympathising eye is also not quite definitely known. Majority of the workers are however of the opinion that portal of entry from injured eye to the sound eye is through the blood stream.

Clinical picture :—The exciting eye or the eye that has received the injury shows signs of persistent, indolent, low grade uveitis. The eye is red, injected and irritable. There is pain, tenderness and lachrymation and occasionally a nodule is seen at the pupillary margin. Eventually it leads to Pthisis Bulbi.

The sympathising eye gives practically the same clinical picture with signs of plastic iritis leading to posterior adhesions.

The onset is very insidious with the appearance of keratitis precipitates and early visual failure. There are periods of remission and

exacerbations with pain and lachrymation. The posterior adhesions spread in front of the lens covering the pupillary area.

Early prodromal symptoms are obscuration of vision, lachrymation, circum-corneal congestion with signs of irido cyclites. The eye ball is tender. These signs and symptoms may disappear after treatment, but soon after keratitis precipitates appear, the vitreous humour becomes hazy and gradually the iris gets adherent posteriorly to the lens capsule As the infection spreads posteriorly, signs of choroiditis appear.

Course of the disease :—It is variable and runs a very chronic course with a tendency to relapse. Usually the ultimate result is that the eye ball gets shrunken. The tendency to relapse persists even after the eye ball is shrunken, hence it is advisable to enucleate the eye to prevent a relapse.

PATHOLOGY.—Pathological changes in both the exciting and the sympathising eye is identical. It consists of massive round cell infiltration of the whole of the uveal tract, particularly the choroid with preponderance of epitheliod cells and some giant cells, with a tendency to nodular aggregation. The round cells are chiefly the lymphocytes and plasma cells and are followed by large epitheloid cells which is very characteristic of the disease. The epitheloid cells coalesce to form multinucleated giant cells. The stages of infiltration are :—

(1) Focal infiltration of lymphocytes around and in the larger veins especially of the choroid.

(2) This is followed by typical nodules of epitheloid cells with giant cells in the centre, surrounded by lymphocytes.

(3) Tumour-shaped masses appearing in the iris and uniform diffuse infiltration in the choroid.

DIAGNOSIS :—Early diagnosis of the disease is absolutely essential, as on that depends the possibility of saving at least one eye from destruction. The essential early phenomena is the occurrence of free floating particles in the aqueous and vitreous, which get deposited behind the cornea. This is the characteristic early phenomena, in the absence of which it would be quite safe to exclude the possibility of sympathetic ophthalmitis.

PROGNOSIS.—In general it may be said that if the case comes early, it is possible to save at least one eye from destruction. The prognosis is very bad in the late stage of the disease.

TREATMENT.—As the ætiology of this condition is not known, there is no specific line of treatment for this condition. The treatment is more or less a symptomatic one.

Locally Atropine is the drug of choice. Atropine drops and ointment should be employed from the very beginning. If this leads to an increase in tension, paracentesis should be performed, but Atropine should not be given up.

Other drugs tried are Salicylates and Mercury inunctions. Of these Salicylates by mouth in large doses is preferable.

Recently diphtheria antitoxic serum 20,000 units per day till recovery takes place have been recommended. Similarly typhoid vaccine and milk injections are found to be very useful.

Finally it may be said that enucleation of the exciting eye as early as possible is the best remedy for saving the other eye.

The question of enucleating the exciting eye becomes more difficult in case the other eye is already infected. In that case symptomatic line of treatment is carried on till the inflammation subsides and then the vision in two eyes is compared to see which eye should be enucleated. Sometimes it so happens that the vision in the exciting eye is found to be better than the sympathising eye and in that case it would be folly to remove the exciting eye.

So the treatment of this condition depends upon the stage at which the case comes to you for treatment.

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Investigation on Tonsils and Adenoids*

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ÆTIOLOGY OF ENLARGED TONSILS AND ADENOIDS:—1. Heredity is the cause in certain cases as the parents of children who have got enlarged tonsils and adenoids are found to suffer hypertonsils and adenoids.

2. Age:—It is essentially the disease of childhood chiefly at the age between 3 and 12 years and enlarged tonsils is also the disease of childhood and it continues to the adult life.

3. Race:—Incidence.—It is found in all races but very common in India.

4. Climate and country:—The places which are damp and liable to sudden changes, bad hygiene, special inhalation of vitiated air and impurities such as irritating gases are predisposing causes.

5. Sex incidence:—It occurs equally in both sexes.

Existing causes:—1. Infectious fever and other exanthemata—(*a*) Diphtheria; (*b*) influenza; (*c*) anterior poliomyelitis; (*d*) measles; (*e*) scarlet fever; (*f*) German measles; (*g*) arthritis; (*h*) endocarditis; (*i*) pneumonia; (*j*) tuberculosis—syphilis; and (*k*) rheumatism.

2. Purulent rhinitis.

3. Nasal obstruction.

4. Affection of the ear—middle ear disease.

5. Affection of the mouth, (*a*) Dental caries, and (*b*) pyorrhœa alveolaris.

6. Affection of cervical glands.

During my examination of school students I often found enlargement of cervical glands with enlarged tonsils and adenoids. During my three years

* Specially contributed to THE ANTISEPTIC.

1 to 2% children suffering from tonsils and adenoids had enlarged cervical glands.

7. Bacterial causes:—(*a*) Streptococci of various types; (*b*) pneumococci; (*c*) staphylococci; (*d*) diphtheria bacillus; (*e*) influenza bacillus; (*f*) spirochete of syphilis; (*g*) tuberculosis bacillus: (i) bovine 90%; and (ii) human 10%.

Anatomy of tonsils and adenoids.—The faucial tissues which lie between the pillars of the fauces in the most complex part of the lymphoid tissue situated at the entrance of the alimentary canal. In structure it resembles a lymphatic gland and is surrounded for the most part by a capsule which is connected to the structure forming the pharynx by loose areolar tissue except at its lower pole which resines its main vessels and has some muscular attachment. This capsule allows the tonsils to move on the wall of pharynx and is potent protection against the spread of infection. The main efferent lymphatic vessels pass from the tissues to a gland belonging to the deep cervical chain. They are also supplied by afferent lymphatic from nasal mucous membrane.

HISTOLOGY:—I need not go into the details of histology. It is enough for my purpose to say that histology of tonsils and adenoids is the same as that of any other lymphatic gland in the body.

PATHOLOGY:—*Hypertrophy of the tonsils*:—Certain persons specially in childhood or youth are prone to repeated sub-acute inflammation of tonsils and as these recur the tonsils acquire a permanent enlargement. The enlargement is variable, there being sometimes a rapid enlargement, sometimes it is very slow.

The inflammation sometimes leaves behind deep pits and recesses in the tonsils. These may contain some solid plugs consisting of the secretion of the mouth mixed with food, microbes and fungii. When these plugs consisting of secretion of the mouth etc, decompose they cause irritation in surrounding tissues. The hypertrophy is not always the result of chronic inflammation. There are cases of congenital hypertrophy of the tonsils and then there are still more cases of glandular enlargement without any apparent attack of inflammation. In this way tonsils may become as large as hen's egg.

PHYSIOLOGY:—The tonsils are part of the ring of lymphoid tissue which guards the entrance of respiratory and digestive tracts. The exact nature of its formation is not yet determined, as extraction of the organ, so far as can be discovered, causes no defect in the economy as it can be carried on by the remaining lymphoid tissue in the vicinity. Tonsils and adenoids gradually atrophy as adult life is reached. The most probable function of tonsils and adenoids is that they act as a filter and protecting agent in infection in this region. It is also probable that in the exercise of this phagocytosis they confer some immunity against organisms inhabiting this region.

BACTERIOLOGY:—The tonsils are subject to the presence of organism during the whole life both on their surface and in the lacunæ which penetrate their substance. Under the normal condition no invasion takes place but under the influence of local injury or lowered resistance infection does take place.

On investigation it is found that following organism are found in health.

Streptococci	... 50%	Diplococcus capsularis	... 4
Pneumococci	... 14%	Influenza bacillus	... 5
Staphylococci	... 20%	Pyocyanasus	... 1
Micrococcus catarrhalis	... 12%	Freed landers bacillus	... 1
Diphtheria bacillus	... 16%	Spiralis	... 1
(5 true, 5 pseudo, 6 not determined)			

In pathological condition the normal balance of varieties may be upset while additional organisms may be present, such as (1) tuberculous bacillus, and (2) bacillus coli. Active invasion of the tonsil may occur through the lymphatic channels leading from an infective condition of the nose. More often, however, the infection is from the surface and is determined occasionally by injury but often without any gross mechanical factor, it being dependent on an increased virulence of the organism or some lessening of the chemical defence of the body. The lesion may be limited to the surface of the organ and be associated with the condition of the rest of pharynx or it may spread to various depths and become sub-epitheleal. Lacunæ or in the substance of the tonsils. From the tonsil spread is limited largely by the capsule but infection may take place through some aperture.

All forms of inflammations subside completely and leave no trace under proper treatment or it may recur throughout life if neglected. The tonsil may hypertrophy on account of some irritation slowly and gradually and it may be followed by atrophy.

Syphilis.—The syphilis of tonsil in children is very rare. I have not come across even a single case during these three years.

Tuberculosis.—Tuberculosis of tonsils as a primary disease is very rare among children but they get infected from other lesions, *e.g.*, in lungs or from tuberculous milk of cows. The infection of milk is very common, it is presumed that 20% of milk samples examined were infected by T.B. Tuberculosis of cervical glands is very common among school children. In at least 30% cases tonsils are found infected by T.B. From tuberculous tonsil infection spreads to cervical glands. It is almost impossible to recognise the tuberculous tonsil, clinically its nature can only be suspected before removal. Its presence can only be determined clinically by its infection of cervical glands. I have not yet seen a case of ulceration of tuberculous glands.

Unfortunately the tuberculous tonsil rarely causes symptoms, there is no pain or any other trouble. It is this which has so often led this focus of infection to be overlooked.

School Health Officer,
Agra.

Outlines of Medical Treatment in General Practice with Recent Advances *

TARACHAND R. LALA, L.C.P. & S. (Bom.),
Shikarpur, Sind.

Renal colic.—Treat the patient on the following lines:

1. *Enema*:—This helps to open the bowel and remove flatus which appears to accentuate the suffering of the patient who is usually constipated.

2. *Cupping*:—Many physicians are in favour of cupping which is decidedly of value.

3. *Morphia*:—Injection of any of the following should be given to relieve pain which the patient wants to be relieved of immediately:

(*a*) Morphia gr ¼-½ + Atropine gr. 1/100
(*b*) Morphia gr ¼-½ + Bellafoline (Sandoz) 1 c.c.
(*c*) Omnopon (Roche) + Bellafoline.
(*d*) Omnopon and Prostigmin (Roche).

Prostigmin and Morphia (Omnopon) combination appears to be excellent specially for dislodging ureteral calculi. The usual dose of Morphia is gr ¼ but when it is mixed with Prostigmin only 1/8 gr of it is required as the latter potentiates the action of the former whose drawbacks of habit formation and acquiring of tolerance are also minimised.

Other drawbacks of Morphine such as constipation and distension are also counteracted by Prostigmin.

4. *Orally*:—Prescribe any of the following mixtures as the case may require.

℞	Potassium Citras	.. gr. xxx	℞	Sodi Bicarb	.. ʒ p
	Veramon	... gr. xii		Liq. Morphia	... ♏ xx
	Sodium Gardenal	... gr. iii		Aqua ad	... ℥ iii
	Pot Bromide	... dr. p		℥ i T.D.S.	
	Tr. Belladonna	... ♏ xv			
	Syp. Auranti	... dr. iii			
	Aqua ad	... oz. iii			
	℥ i T.D.S.				
℞	Pot Bicarb	... gr. xl	℞	Pot Bromide	... ʒ p
	Liq Potassi	... ♏ xl		Sodi Bicarb	... ʒ p
	Tr Hyoscyamus	ʒ i		Pot Citras	... ʒ p
	Spt Etheris Nitr	... ʒ i		Spt Etheris Nitr	... ♏ xl
	Inf Buchu	... ʒ iii		Tr Hyoscyamus	... ʒ i
	Aqua ad	... ℥ iv		Syp	... ʒ iii
	℥ i. T.D.S.			Aqua ad	... ℥ iii
				Oz. i. T.D.S.	
℞	Heroin Hydrochlor	... gr. ¼	℞	Spt Etheris Co	... ʒ p
	Spt Etheris Co	... ʒ p		Liq Morphia	... ♏ xx
	Spt Chloroform	... ♏ xx		Tr Hyoscyamus	... ʒ i
	Inf Buchu	... ℥ i		Aqua ad	... ℥ iii
	T.D.S.			℥ i. T.D.S.	

* Specially contributed to THE ANTISEPTIC.

℞ Veramon ... gr. xii
Sodi Gardenal ... gr. ii
Phenactin ... gr. x
Bellafoline ... 2
Fiat 3 Pds. T.D.S.

℞ Spasmo Cibalgin
Di Dial ... 3
Fiat Pulvis ... 3
1. Every six hours. ... 3

℞ Omnopon (gr. 1/6) ... 2
Prostigmin ... 2
Saridon ... 2
in 3 Pds. One as required.

℞ Aspirin
Phenactin ... gr. vii
Belladenal ... gr. vii
in 3 Pds. One as required. ... 2

The above prescriptions have their ingredients diuretic, analgesic and antispasmodic properties and selection may be made according to the need of the patient.

Treatment between the attacks :—The patient should avoid constipation, hard labour, jolting, riding etc. Vitamin A deficiency is said to be the cause of formation of calculi. Adexolin, Haliverol etc., are good sources of vitamin A. As hypercalcæmia of the blood tends to cause calculus formation, calcium parathyroid and vitamin D should be avoided by the patient. In all cases of calculus of the urinary tract the diet should have little of salt, condiments, dried fruits, vegetables, spinach, raisins, almonds, figs, olives cherries, beets, carrots, cucumber, rhubarb, melon and pine apple.

Find out nature of calculus by microscopic examination etc. of urine and treat the patient accordingly with suitable solvents.

Uric Acid :—Sodi Hippuras gr. v–xxx or Hippural (Gluconate Ltd.) may be used for hyperuric acidæmia. The following prescriptions are also useful :

℞ Ammonium Hippuras. ℥ip
Aqua Chloroform ... ℥ viii
℥ i. T D.S.

℞ Piperazine ... gr. x
Liq Arsenic ... ♏ vi
Lithium Carb ... gr. x
Pot. Bicarb ... gr. xv
Tr. Hyoscyamus ... ℥ i
Inf. Buchu ... ℥ iii
℥ i. T.D.S.

℞ Lithium Citras
Pot Citras ... gr. xii
Caffein Citr ... ℥ p
Spt Chloroform ... gr. iii
Glycerine ... ♏ xxx
Aqua ad ... ℥ i
℥ i. T.D.S. ... ℥ iii

℞ Mag Sulph
Sodi Water ... ℥ ii
... ℥ vi
To be taken early in the morning.

Oxalates :—1. Pot or Sodi Citras acts as a diuretic and prevents the formation of oxalates.

2. Acid Phosphate of Sodium is recommended as a solvent of Calcium Oxalate.

3. After meal the following is recommended by Chandra :

℞ Acid Nitro Hydrochloric dil ... ♏ xxx
Tr. Nux Vomica ... ♏ xii
Glycerine Acid Pepsin ... ℥ iii
Spt Chloroform ... ♏ xxx
Inf Gentian Co ... ℥ iii
℥ i. T.D.S.

Phosphates :—Two drachms of Acid Sodium Phosphate and ten grains of Urotropine to be dissolved in a bottle of Sodi water and to be taken by sips within 24 hours.

2. Whitla recommends Boric Acid gr. viii—x with surprising efficacy :

℞ Boric Acid ... gr. xx
Sodi Benzoas ... ℥ p
Urotropin ... gr. xxx
Spt Chloroform ... ℥ p
Aqua ad ... ℥ iii
℥ i. T.D.S.

Acute pyelitis and cystitis.—*Definition* :—Pyelitis means inflammation of the pelvis of the kidney. The infection may pass on to the urinary bladder giving rise to cystitis. The descending infection is due to involvement of the urinary tract through the blood stream. The ascending infection is from the urethra particularly in women. It is more common in women and girls and is commonly seen during pregnancy and puerperium. Adjacent abdominal organs may be the infecting source.

SYMPTOMS AND SIGNS :—The infecting organisms are (1) Staphylococci, B. Proteus, Streptococci, B. Typhosus. They make the urine alkaline.

(2) B. Coli, Gonococci make the urine acid.

But there is nearly always a mixed infection, the B. coli and staphylococci being by far the commonest. Bacillus coli communis is a normal inhabitant of human colon and lower part of ileum. This organism is not without its use to its host as it is supposed to help the digestive process in the intestine and to protect the latter from some infecting micro-organisms. Under ordinary conditions, so long as it is confined to its normal limits, it is non-pathogenic to the human system, but under certain altered circumstances it migrates to the pelvis of the kidney and the urinary bladder producing inflammatory affections.

1. *Fever* :—The onset may be sudden with a sharp rise of temperature and shivering. The severity of fever may vary or even there may be no temperature. The temperature may rise only in the evenings to 99°–100°F. It may continue for several days. Indeed pyelitis is one of the commonest and unthought of cause of fever labelled as 'obscure' or of 'unknown etiology.' It has been mistaken for malaria, T.B. and typhoid, etc. In a case the temperature was continuous for 3 weeks. There was abdominal pain and the girl was having convulsions. Eventually unconsciousness and coma made their appearance. The diagnosis was carried from one disease to another and even to meningitis but urine examination revealed the true cause of symptoms.

2. *Pain* :—Pain is localised to kidney region at the back. It may be severe as to simulate renal colic or dull aching confusing the condition for lumbago. It may be referred to the front presenting a picture of an abdominal syndrome.

Acute cystitis gives rise to great frequency and pain on micturition which may be agonising. Urgency is very marked, though only small quantities of water, which are often blood-stained, are passed each time. In addition to stranguary there is an aching or burning pain in the perineum, hypogastrium and at the tip of the penis. The urine must be examined and its reaction to the litmus paper noted. It helps in adopting proper line of treatment. Microscopic as well as macroscopic examination should be carried out for blood, flakes of fibrin, pus, albumen, bacteria.

TREATMENT:—1. Rest in bed till the temperature has remained normal for some days and the condition appears to have cleared.

2. *Diet*:—The diet should be restricted to water, glucose, fruit juices and milk during the early period. As soon as toxæmia abates farinaceous foods, bread and butter, toast and biscuits may be added. Later he should be brought on his usual diet.

3. *Constipation*:—As many cases are constipated soap and water enema may be made use of. It is undesirable to give cathartics as their action may tend to encourage the passage of coliform organisms from the gut.

4. Note the reaction of the urine. If it is acid, prescribe any of the following:

℞
Pot Citras	...	ʒ i p
Pot Bromide	...	ʒ p
Liq Ammoni Acet	...	ʒ iv
Cas Evac (P.D.)	...	ʒ i
Tr. Hyoscyamus	...	ʒ i
Syp	...	ʒ iii
Aqua ad	...	℥ iv

3 doses, one in every 4 hours.

℞
Pot Citras	...	ʒ i p
Pot Bromide	...	ʒ p
Veramon	...	gr. xii
Tr. Belladonna	...	♏ xv
Sodium Gardenal	...	gr. ii
Syp Auranti	...	ʒ iii
Aqua ad	...	℥ iii

ʒ ss every two hours.

℞
Pot Citras		
Tr Hyoscyamus	...	ʒ vi
Tr Camphore Co	...	ʒ i
Elixir San Palmetto et Santal Wood	...	℥ i
	...	℥ iv

Dose: ʒ ii every four hours (Dr. Kirwin).

℞
Sodi Citras		
Sodi Bicarb	...	ʒ ii
Liq Ammoni Acet dil	...	ʒ ii
Spt Etheris Nitr	...	℥ p
Tr Hyoscyamus	...	ʒ i p
Aqua ad	...	ʒ i
	...	℥ iii

ʒ ss every two hours.

The principle underlying these prescriptions is to give large doses of alkalies. Feiling Smith states: "As a rule Pot Citras in 30 grain doses every two hours at first and later every four hours will be sufficient, but if this is not enough Sodi Bicarb should be added; we have sometimes found it necessary to give as much as 40 grains every two hours before the urine became alkaline."

5. For severe pain, irritation in the bladder and urethra, an analgesic may be necessary:

℞
Aspirin		
Phenactin	...	gr. v
Codien Phos	...	gr. iii
	...	gr. 1/6

To be used as required.

℞
Pyramidon		
Luminol		gr. v
Ext Hyoscyamus	...	gr ½
	...	gr. 5/6

To be used as required.

Cibalgin, Spasmocibalgin, Allonal, Sonalgin, Codopyrin etc., may be temporarily used.

6. If the urine is alkaline, an acidifying agent should be used.

Acidifiers:

℞
Sodi Benzoas	...	gr. xxx
Urotropine	...	gr. xxx
Spt Chloroform	...	ʒ p
Aqua ad	...	℥ iii

ʒ i. T.D.S.

℞
Boric Acid		
Sodi Benzoate		gr. xxv
Urotropine	...	ʒ p
Spt Chloroform	...	ʒ p
Aqua ad	...	℥ p
	...	℥ iii

℞
Ammoni Chloride	...	ʒ p—ʒ i
Hexamine	...	ʒ p
Ext Glyceryzza	...	ʒ i
Spt Chloroform	...	ʒ p
Syp	...	ʒ iii
Aqua ad	...	℥ iii

ʒ p every two hours.

℞
Ammoni Benzoate	...	ʒ i
Acid Boric	...	ʒ p
Tr Hyoscyamus	...	ʒ i
Aqua ad	...	℥ iii

ʒ i. T.D.S.

℞
Acid Sodi Phos	...	ʒ i p
Aqua ad	...	℥ iii

ʒ i. T.D.S.

Several writers object to combination of Hexamine and Acid Sodi Phos in a mixture form, but eminent authors like Romanis and Mitchiner combine it as:

℞
Urotropin	...	ʒ p
Acid Sodi Phos	...	ʒ i
Tr Hyoscyamus	...	ʒ i
Spt Chloroform	...	ʒ p
Aqua ad	...	℥ iii

ʒ i. T.D.S.

URINARY ANTISEPTICS:—1. *Penicillin*:—This is useful in cases of staphylo, strepto and gonococcal infection. Where the infecting organisms are B. Typhosus, B. Coli, B. Proteus, Penicillin is ineffective and should not be administered. It should be injected every three hours in dose of 25,000 units.

2. *Sulphanilamide*:—This preparation is found to be highly effective against B. coli, B. proteus and streptococci. It is of use in acid as well as alkaline urine. Sulphathiazole (Cibazol, M. & B. 760) is the drug of choice because it possesses anti-staphylococcal action. It can be given orally or by injection which is quite painless when given intramuscularly. Three to six tablets per day should be the dose till total of 25 to 35 grms. have been reached.

Uroxyl (C.D.C.) contains Hexamine, Salicylic Acid, Caffein and Sulphanilamide in injectable form. This may be used in changing alkaline reaction of urine to acid one Uroxyl granules may be used orally for the same purpose.

Sulfotropin (Wander) has Sulphanilamide, Hexamine, Calcium Gluconate as its constituents. This can also be used in tablet or injection form in cases of alkaline urine.

One can use the following for the same purpose:

℞
Cibazol	...	♏ iii—vi
Hexamine	...	gr. x—xxx
Calcium Chloride	...	gr. xxx

Fiat Pulvis six. One every two hours mixed in a glass of water.

Cibazol and Hexamine will act as antiseptics and Calcium Chloride will acidify the urine.

3. *Mandelic Acid*:—Ammonium or Calcium Mandelate is the preparation of choice because it is less irritating and less nauseating as compared to pure Mandelic Acid. This preparation is useful in cases of alkaline urine which becomes sterile within seven to ten days of its use. Mandelic Acid may be used in cases showing pure infection with B. coli or in those cases which do not show proper response to Sulphanilamide.

The preparations available in the market are: Mandelix (B.D.H.), Mandecal (B.D.H.), Ammoket or Neoket (Boots), Acigen (M. & B.).

4. *Hexamine*:—The chief use of Hexamine is in the treatment of cases of chronic catarrhal infection of the urinary tract and particularly of the bladder. In all acute and many subacute cases of urinary tract infections, however, Hexamine is contra-indicated. Even in chronic infection it is inferior to Sulphanilamide and Mandelates (Dunlop).

There are several preparations containing Hexamine, *viz*, Sylomin (Alembic), Pyelopurin (Cipla), Cylotropin etc.

5. *Pyridine*:—Several dyes of Pyridine series are used as urinary antiseptics, *e.g.*, Pyridium (M.J.). Their action is uncertain and therefore Mandelates and Sulphanilamide preparations should be preferred.

6. *Hexyl Resorcinol*:—Caprokol (B.D.H. or Sharp & Dohme): It is inferior to alkalies, Sulphonamides and Mandelates. If ever used it should be reserved for subacute cases of cystitis.

7. *Acriflavine*:—Mercurochrome and Methylene Blue should be taken as the drugs of the past and their results cannot compare with the standard line of treatment of the present day.

Termination of pregnancy may be considered if pyelitis does not respond to the above line of treatment and the condition of the patient deteriorates in spite of careful treatment. Once ureteral obliteration from uterine pressure is removed, the infection is likely to subside of its own accord.

Summary.—1. In the initial stages where the urine is acid Alkalies and Sulphathiazole are the drugs of choice.

2. Similarly where the urine is alkaline acidifying agents and Sulphathiazole should be the drugs to be employed. In both cases in the majority of patients pus will have disappeared and urine will have become sterile on culture within ten days.

3. If still the infection persists use Mandelates.

4. Hexamine, Hexyl Resorcinol and Pyridine should be reserved for chronic cases and even there, they are inferior to Sulphathiozole or Mandelic Acid.

5. Where the primary focus is in the intestine Sulphathiazole is likely to fail. Sulphaguanidine, Succinyl Sulphathiazole or Phthalyl Sulphathiazole should be used to clear up the focus of infection in the gut and Mandelates simultaneously prescribed to clear up the urine.

Recently good results have been achieved with Sulfadiazine and Sulfamerazine preparations which may be made use of in place of Sulphathiazole.

Acute nephritis.—In acute nephritis inflammation begins and predominates in the glomeruli and to a less extent in the tubules of the kidney. The micro-organism responsible for it is streptococcus and the focus of infection is in the tonsils, respiratory passages, nasal sinuses, middle ear or the skin etc.

Clinically there are fever, the severity of which varies; dropsy which is first noticed in the face in the loose areolar tissue below the eyes and becomes generalised; urine is scanty and is loaded with albumin. Epithelia

hyaline blood casts are present. Hæmaturia may be profuse. Uræmic symptoms like vomiting, headache and drowsiness are also present. Blood pressure is raised.

TREATMENT.—*Rest*:—Rest is important in the treatment of acute nephritis. The patient should be kept warm between the blankets as the condition is usually met with in winter.

Diet:—The principle underlying the dietetic treatment is not to burden the inflamed kidneys. Therefore diet should be restricted to milk and glucose solution whose total quantity should not increase beyond 20 ounces within twenty-four hours. Following the appearance of diuresis and the lessening of hæmaturia, the caloric intake is increased by the addition of further carbohydrates and fat as bread, cereals, fruit, butter and cream. As the patient improves he should be brought on home food. The intake of Sodium Chloride (common salt) should be limited and Potassium Chloride given instead as Selarom (Bayer) of prewar days is unavailable at present.

Vitamins:—Vitamin C influences hæmaturia and is a good diuretic. Other Vitamins notably A and D are also useful to increase the power of resistance to infection. A multi-vitamin preparation like Vitaminets (Roche) may be advised.

Alkalies:—A simple alkaline mixture acts an an efficient diuretic and diaphoretic.

℞	Pot Citras	... 3 p—3 i
	Pot Acetas	... 3 p—3 i
	Liq Ammoni Acet	... 3 iii
	Spt Etheris Nitr	... ℥ xxx
	Cas Evac (P.D.)	... 3 i
	Glucose	... 3 iii
	Aqua ad	... ℥ iii

℥ i. T.D.S.

Penicillin:—Penicillin is specific in the treatment of acute nephritis. Even in the presence of heart failure and anuria, good result can be expected of it. 10,000—25,000 units every three hours intramuscularly will clear up the inflammation within few days.

Sulphonamide:—Sulphonamide preparations are also excellent in the treatment of acute nephritis. The writer has treated some cases with it, with very good results The œdema, albumin disappear rapidly and there is free diuresis. Any of the following preparations may be prescribed with confidence: Septanilam. (M.B. 693), Cibazol, Sulfadiazine and Sulfamerazine. Several cases of acute nephritis treated with Sulfonamide and Penicillin are reported in the following articles which may be referred for further study. *Medical Review of Reviews*, Oct. 1945, p. 89; THE ANTISEPTIC, 1941, p. 896; *Journal of the Indian Medical Association*, Jan. 1946, p. 119.

Under the above line of treatment diuretics are not needed as spontaneous diuresis usually begins after few days. Mercurial diuretics like Neptal or Esidrone are totally contra-indicated and should never be given because of their harmful effects on the inflamed kidney tissue.

Where cardiac failure occurs as complication, there should be no hesitation in employing digitalis in full doses.

Acute pseudo uremia is characterised by headache, apathy, vomiting, amaurosis and coma. It is due to an acute œdema of the brain and is by

no means a hopeless condition. At the first appearance of symptoms two to three ounces of 50% Magsulph solution should be given by mouth and repeated every four hours until a fall in blood pressure is obtained. If coma or convulsions supervene 50 c.c. of 50% of Sucrose given intravenously is very satisfactory. It may be repeated every six hours. Venesection and lumbar puncture may yield dramatic results. Other solutions recommended are: Rectally 8 oz. of 25 p.c. Magsulph; Intramusculary 6-10 c c. of 25% Magsulph; 40 c.c. of 30 p.c. Sodi Chloride or 200 c.c. of 50% Glucose may be injected intravenously.

During convalescence: Iron is useful to treat anæmia.

℞ Ferri et Ammoni Citr	...	ʒ p
Pot. Citras	...	ʒ p
Glucose	...	ʒ iii
Aqua ad	...	ʒ iii
ʒ i. T.D.S.		

Shikarpur, Sind.

A Clinical Nutrition Survey of School Children*

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MANY clinical nutrition surveys have been done all over India, all bringing out the doleful tale of overwhelming nutritional deficiencies, due mainly to lack of food in quantity and quality. In Coimbatore, so far, such surveys do not seem to have been made, and that was the inducement for the present survey.

One hundred pupils of the Municipal Elementary School, Devangapet, Coimbatore, belonging to Classes III, IV and V were examined in the month of June, 1947. No selection was made, the pupils being examined serially. All the children were up and about, apparently healthy. Only gross nutritional deficiencies were noted, there being no facilities for any laboratory work in the Municipal Dispensary, next door to the school. 40% of the pupils were the children of weavers, who form the predominant portion of the population of the locality and the rest were the children of mill workers, petty shop-keepers, mechanics, peons and coolies. The monthly income of the parent or guardian, so far as could be known from the children, ranged between Rs. 30 and Rs. 60. The results observed were tabulated as follows:—

Name, residence, work and emolument of parent or guardian, sex, age, height in inches, weight in lbs., signs in the eyes, signs in the mouth, carious teeth, signs in bones, signs in skin, general appearance. The age of the children varied from 7 to 14 years, most of them being in the range of 8 to 12 years. The children were asked about the food they took in the immediate past 24 hours and about their other general and occasional diet.

Even adopting exceptionally low standards, of only 9 children could it be remarked that the gross deficiencies observed in the others were not present in them.

* Specially contributed to THE ANTISEPTIC.

Physical measurements.—The measurement of height and weight gives very relevant information on the general health and state of development of the children. In fact, pride of place must be given to these in assessment of the nutrition of the children, as they are the index, easily evident, of the sum total of all the factors that go to make up an individual's physical stock. Of course geographical and climatic conditions and heredity have to be taken into account in comparisons of figures; allowing for all these to the extent of 10% below average American standards for the same age and sex, absolutely none of the children come up to this 10% below standard in height or weight. The lag in height was not so very great, though marked enough, as the lag in weight which was very much indeed and that surely is a very gross evidence of the lack of "enough to eat." Adopting the very arbitrary and very low standard of weight 1 lb. to height 1", which, in this age group, would suffice, it was seen that 53 children were below standard. Of these, only 15 had no other deficiency, 22 of them had also vitamin A deficiency, 10 also vitamin B_2 deficiency, 23 also dental caries and 5 rickety rosary also, 18 had more than two deficiencies.

The reason for these poor figures evidently lies in the lack of enough calories, enough proteins and of the growth promoting vitamin A, as will be shown later in analysis of the children's diet.

Deficiency diseases:—The presence of these gross deficiency diseases reveal the extent to which even minimal requirements of necessary vitamins are not met.

Vitamin A deficiency:—50 of the 100 children revealed one or more of the following conditions:

Xerophthalmia in 32 children.
Bitot's spots in 17 children.
Phrynodermia in 7 children.

Xerophthalmia is characterised by a loss of lustre and wrinkling in the conjunctiva with pigmentation and lachrymation. 32 children had this condition well-marked. In 17 children Bitot's spots—consisting of raised whitish opaque plaques occurring in the bulbar conjunctiva, usually on the temporal half, but sometimes on the inner half also,—were also present. Phrynodermia was observed in 7 children. It occurred by itself in one; in the others Xerophthalmia also was present.

Lack of milk, animal fats, greens and green vegetables accounts for the very large number of children presenting this deficiency.

Hyporiboflavinosis.—As manifested commonly by angular stomatitis was found in 19 children.

Thiamine deficiency and Nicotinic Acid deficiency were not observed in any of the children.

Cases of frank scurvy were not seen and as no laboratory investigation was done, blood ascorbic acid level could not be ascertained. It may be mentioned that in India vitamin C deficiency does not seem to be very common, considering the widespread malnutrition in other respects.

Nine children showed rickety rosary. Of these only one had only this deficiency, seven had vitamin A deficiency also and one had carious teeth also.

Dental caries:—34 children had one or more carious teeth each. Only 6 of these had no other deficiency. 23 revealed poor height-weight ratio, 14 had vitamin A deficiency, 7 had angular stomatitis, one had rickety rosary. The cause of caries is yet to be definitely known. Of old, it used to be said that caries was caused by acids derived from carbohydrate fermentation dissolving inorganic salts of enamel, the determining factor being the presence in abundance of starchy material in the diet. M. Mellanby's pioneering work has shown that the resistance of the dental tissues to disease is closely related to nutritional factors which govern the health of the body as a whole. The marked co-existence of other deficiency diseases with caries is strong reason for considering dental caries itself a nutritional disorder.

Food:—From the detailed data of the food taken by the children in the immediate past 24 hours, it was seen that the food was more or less the same in the case of all the children.

Rice is the staple diet. The vagaries of rationing make it sometimes raw, sometimes par boiled, sometimes half-milled, sometimes full-milled, often with weavils and mud, always foul smelling, a potent cause of the gastro-intestinal upset that almost is a usual phenomenon to-day. The children usually start the morning with cold rice—cooked rice kept overnight in water. Adding a pinch of salt to it, it is taken. Only few children take it with buttermilk, which latter, many of them say, they take only very occasionally. A few children take coffee in the morning and *idli* or *dosai*, made up with rice and gram. Very little oil is used with *dosai*. Midday meal consists of rice and *rasam*—a thin soup of tamarind water with very little dhall, and some days vegetables—the usual one being "brinjal", and sometimes 'lady's fingers' or cluster beans, sometimes instead of *rasam* it is *sambar*—a thicker variety with a little more dhall in it. In the evenings, with the pice doled out to them by fond relatives, they buy mostly boiled sweet potato, which might well be one of the factors that go to make dental caries so common among them, sweet *mittais*, ground-nut, *muruku* and plantains. In the night they take again rice and *rasam* and mostly no vegetables. Once a week or once a fortnight they take meat or fish and as rarely eggs.

It is no wonder that on this poor diet, the children have, so many of them, deficiency diseases. It is a marvel of human adaptability that they are able to be up and about so much on this feed. Of calories, they are not enough. The carbohydrates are excessive relatively. Of fats, there is very little, coming only from the frying oil used in cooking. Of the fats of animal origin containing the vitamins A and D, there is almost nothing at all. The protein has to come from rice and dhall or gram which contains proteins of low biological value. The meat intake is too little to matter much. Milk as such is never taken at home except for a few drops in the so-called coffee, and as buttermilk, even in which very diluted form, it is only rarely taken. Quite a lot of children said they refused the milk given in the school, as it caused diarrhœa—no wonder, seeing that the milk powder is mixed with any water in any dirty vessel lying about, with the dirty hands doing the mixing and supplying in dirtier tumblers. The common vegetables taken are brinjal, cluster beans, lady's fingers, sweet potato and yams. Very little of these vegetables even is taken. Greens are not often taken. Only 4 children said they had taken it the previous day. Pappads—a good source of protein were again taken by 2 children only. The diet is deficient in all the vitamins. Vitamin A is deficient in the diet because greens are not taken, very little green vegetables are taken, milk is luxury and animal fats more of a luxury. Vitamins of B complex are deficient, as eggs are rarely taken, good hand pounded rice is not available and flowering tops of green vegetables do not form an item of the diet.

Of vitamin 'C' there is not a liberal supply, as plantain which contains precious little of vitamin C, is about the only fruit the children know. Vitamin D, thanks to the sunshine, is there in scorching plenty. Poverty of course is the main cause of the poor diet, though food faddism plays no small part in making bad worse.

Suggestions.—The authorities can help by giving protective foods. The survey brings out the need for more calories, more proteins and more of the vitamins, A, B & D complex. This could be accomplished by giving the children Shark liver oil and food yeast, the former rich in the calories and the vitamins A & D, the latter rich in the vitamins of the B complex and proteins of very high biological value. A teaspoonful of each twice a day given to the child every day makes all the difference between a poor diet and a tolerable diet. Palatability is a great bug bear, but a good deal of good humoured coaxing by a willing teacher who stresses on the food value of it will accomplish the trick of these going into the boy's inners and not into the yawning gutter which borders the school. When milk is given, the milk powder should be well mixed in good filtered water in a clean vessel without using the hand, and cleanly ladled out to the children with some jaggery added for taste. The free midday meal should include butter milk and greens or cluster beans *sundakai* and dhall every day. Instead of itinerant vendors being allowed to choke the entrance to the school with their rotting plantains and fly-infested *jav-mittais*, licensed vendors may be allowed to hawk good ripe tomatoes, groundnut, gram etc.

Summary.—Of 100 children seen, only nine came up to a tolerable nutritional standard. 53 were grossly under weight, 50 had gross signs of vitamin A deficiency, 19 had angular stomatitis, 34 had carious teeth. The diet is shown to be lacking in all the essentials. Suggestion for giving supplementary protective foods as Shark liver oil and yeast is made.

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Further reports on Weil-Felix Reaction in Kala-azar*

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I REPORTED in January '47 issue of the ANTISEPTIC 6 cases of Kala-azar with special reference to serological reactions in Kala-azar. It was found that in 4 out of the 6 cases reported, sera agglutinated OXK suspensions to a diagnostic titre of 1/320 and above and in a few the titre rose up to 10 000. In all these cases L. D. bodies were demonstrated either in sternal marrow or splenic smears. Particular attention was paid to exclude scrub typhus which is endemic in Burma where this investigation was carried out.

* Specially contributed to THE ANTISEPTIC.

Case Report.

Name	Age	Symptoms	Liver	Spleen	W. B. C. Total	P. L. M. E.	Aldehyde
N.B.	24	Irregular fever of 1 month duration emaciated.	++	+ + +	4800	16. 78. 4. 2.	+++
C.T.	25	Epistaxis. Febrile bouts of 1 year duration. Emaciated œdema of legs +	+	+++++ upto inguinal ligament.	4000	40. 56. 3. 1.	+++

This work was pursued further and two more case reports are given above with conclusions. These cases were admitted to a General Hospital in Burma in late '47. In both Leishman—Donavanii bodies were demonstrated and complement fixation test for Kala-azar was positive. In both diagnosis was missed when they first reported for febrile attacks and it was only on their second visit to the hospital, a thorough investigation was carried out and a diagnosis of Kala-azar made.

Both of them responded well to a course of ureastibamine.

Conclusion: The sera of both patients gave a titre of 1/640, and 1/320 against OXK suspension; thus confirming preliminary findings reported in early '47. Although a positive Weil-felix reaction against OXK suspension is confronted in certain febrile states other than scrub typhus, the titre is not commonly over 1/80 and not often reaches a diagnostic titre of 1/320 and above. But such findings seem to be common in kala-azar. It might be fruitful to carry out Weil-felix reaction against OXK suspension on sera which have a high globulin content in other diseases.

I am grateful to DR. SEN GUPTA, Officer-in-charge, Kala-Azar Research, Calcutta Tropical School, for carrying out complement fixation test for Kala-azar.

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Yaws or Framboesia*

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Introduction.—Coming from Bengal to this hospital of Central Provinces and working for some months in Maharani Hospital of Bastar State, I was deputed to work in the Yaws ward of this hospital independently. Since then I was much interested with the cases, as I found in almost all the medical books the name of Central Provinces as a centre of yaws cases is omitted.

I kept selected 50 cases of yaws of several varieties as follows:

10 male—20 to 40 years of age.

10 female—20 to 40 years of age.

* Specially contributed to THE ANTISEPTIC.

Case Report—*Contd.*

Chopra	B.S.R. 1st hour	L. D. Bodies	Complement fixation test	Weil-Felix reaction OXK	OX_2	OX_{19}	Plasma proteins Total	A	G
++	129	++ Bone marrow smear	+	1/640	Nil.	Nil.	Not	Done	...
++	156	+++ Splenic smear.	+	1/320	Nil.	Nil.	8·9% gms.	3·178% gms.	5·72% gms.

10 male children—5 to 10 years of age.

10 female children—5 to 10 years of age.

10 other—different age, caste and sex.

DEFINITION:—I will surely say that this is a specific infection by some organism similar to the organism of syphilis, "Treponema Pallidum" which is named by pathologist as "Treponema Pertenue" characterised by pain at the points, some eruptions or ulcerations or granulomatous effection. Never congenital.

ÆTIOLOGY:—Yaws—I have said that it is caused by a similar organism like that of syphilis which is very difficult to distinguish under microscopical examination too. It is contagious and can easily infect any one with any abrasion of tissue.

COUNTRY:—As far as medical books are concerned, it is seen in Malaya, East India, Fugi, some parts of Burma, Ceylon, West India, etc., and I am sure in Central Provinces of India, some portion of Madras Province adjacent to Bastar State Boundary in Central Provinces, a portion of Orissa, mainly Jaipur area.

Race:—The authors are silent about the race. In the Central Provinces mostly the aboriginal classes of *Madias* and *Mudias* are affected, but seen in other races who are coming in contact with those aboriginals.

Age:—No age is restricted.

Sex:—No sex is kept unaffected.

PATHOLOGY:—Among those 50 cases taking 2 from each group.—Khan test—negative.

Wassermann reaction—Positive in almost all cases (25% to 50%.)

Clinical findings have shown that the onset is gradual and when they come for treatment a history of 2 months to 1 year duration is always noted, with some pain mainly on the knee joints or other joints also. The infection generally comes by the discharge of the ulcer or sore by contact through abrated skin or in some cases by flies or any other insects. The peculiarity of these cases are, like that of syphilis, it never affects the mucous membrane, nerve, blood-vessels, organ like eye, and other viscera. It is almost extragenital but cases have been seen with the affection of the genital organ also.

Clinical varieties.—Definitely it has three varieties.

The first variety can be said as primary or in other words an acute stage. In this stage there are formations of papules or boil like eruptions on the body, mainly at the angle of the mouth or nose or ear, or at the junction and between the fingers in palm or foot. Axilla, heel of the foot and the neighbouring lymph glands are found enlarged and shotty to the touch, associated with pain in the joints, mainly knee.

Second variety starts as stated in the first stage and causes a rough patchy skin or sore-like ulcer within a period of two months to one year duration. There is necrosis of the tissue and formation of some white or yellowish gray substance covering the necrosed ulcer. In some cases there is formation of a mass (tumour-like), of various sizes and shape with or without actual ulcer. The masses, however, in some cases, are seen with ulcers at the centre discharging somewhat sero-sanguinous fluid. In some cases these ulcers are seen covered with crust and underneath this the ulcer remains as usual, which discharges the same sero-sanguinous fluid through some opening on that crust.

The third variety seen with some tumour like that of the second group but the duration of illness and affection is more than 2 years and in some cases even 10 years. The growth or the tumour is seen shrunken, the skin underneath is pigmented, thus hard and rough to the touch. There is actual necrosis of the tissue. In this stage the bones are seen badly affected in almost all cases. They may or may not have any bony outgrowth. In many cases the tibia, ulna and radius are seen disfigured (curved lateralwards, forwards or medialwards) like that of vitamin deficient diseases. Likewise in this stage the bone of the nose is mainly affected. There are some constitutional disturbances as some degree of fur, malaise, low vital and mental condition, etc.

TREATMENT :—These 50 cases, taking 10 from each group, were treated in the following manner :

1. Pot Iodide mixture and N.A.B. intravenous injection biweekly.
2. Pot Iodide mixture and Novarsan intravenous injection biweekly.
3. Pot Iodide mixture and Sulfarsanol intramuscular biweekly (child only).
4. Pot Iodide with Sodi Salicylic mixture N.A.B. or Novarsan or Sulfarsanol by injection biweekly.
5. Pot Iodide mixture, N A.B. or Novarsan or Sulfarsanol in alternate with Bismuth injection on each 4th day.

Ung. Hydrarg Ammon was applied to each and every case where there was any ulcer, sore, growth or papules.

The prescriptions are as follow :—

(1) ℞

Pot. Iodide	... gr. x
Pot. Bicarb	... gr. x
Liq. Hydrarg Perchlor	... ♏ xxx
Aqua Chlorofrom ad	... ℥ i T.D.S.

or in cases where the pain in joints is complained mainly.

Yaws or Framboesia

A Madras male child aged about 14 years with yaws ulcers

A Madras female child aged about 3 years with yaws ulcers. Mark the nose

A Madras aged [illegible] years with yaws ulcers

A Bombay boy aged about 6 years with yaws ulcers

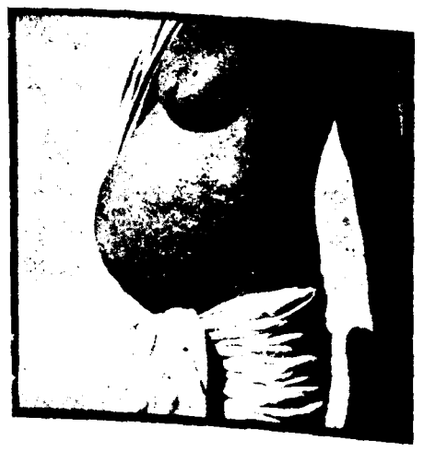
Yaws or Frambœsia

H. K. Guha

A 'Mudia' female child aged about 2 years with yaws ulcer at the thigh and anus.

A 'Mudia' boy aged about 5 years. Mark the bending of bones of upper extremities, yaws growth on face and yaws ulcers on lower extremities.

A 'Mudia' boy aged 10 years with yaws growth at the axilla, and yaws ulcers on the face.



A 'Mudia' female aged about 30 years with yaws ulcers, as she is carrying her child.

℞	Pot Iodide	...	gr. x
	Sodi Salicylic	...	gr. v
	Ammon Bromide	...	gr. v
	Aqua ad	...	℥ i T.D.S.
(2) ℞	Hydrarg Ammon	...	gr. x to xv
	Vaseline ad	...	℥ i

To apply if there is ulcer or after cleaning the crust.

(3) (*a*) N.A.B.—Novarsenobillon (M. & B.) starting from 0·30 grm. to 0·90 grm. on every 4th day increasing the dose every time. 6 injections.

(*b*) Novarsan (Synthetic Drug Co.) starting from 0·30 grm. to 0·90 grm. on every 4th day increasing the dose every time. 6 injections.

(*c*) Sulfarsanol (Anglo French Drug) starting from No. I or 6 cgm. to No. III or 18 cgm. On every 4th day keeping No. I for consecutive 2 or 3 injections. 6 injections.

(4) Bismostab (Boots) or Bisglucol (M. & B.) 1 c.c. intramuscular. If Bismuth preparation is given the dose of Arsenical preparation is kept the same (0·30 grm.) for 2 injections and then increased. Bismuth and Arsenic are given alternately at an interval of 4 days.

Discussion:—N.A.B.—lmost all cases have shown reaction, as nausea vomiting, headache just after the injection. Its curative effect is quite satisfactory and better than any other arsenical products.

Novarsan—no reaction was noticed. Its curative effect is same as N.A.B.

Sulfarsanol—reaction like pain on the injected part. Delay in absorption has been recorded. It is very useful in children and cures a case as good as Novarsan or N.A.B. the only drawback is that it has got no action if given in any route to an adult (above 10 years of age). Bismostab or Bisglucol—Any of these are very painful and takes a lot of time to absorb.

Difficulties in treatment.—The main difficulty to treat a case of yaws in this province is that the illiterate "Madins" and "Mudius" will never stay in the hospital for the full course of treatment and as soon as they notice some improvement, such as less pain in joints, ulcers are healing, in a group once, they will leave the hospital without any notice to the doctor concerned. Generally they left the hospital after the third injection. If Bismostab or Bisglucol is given these patients will never stay for the next injection and thus it has become a practice here not to give any Bismuth injections, but to carry on with arsenical preparations only.

Result.—After three injections of any of the arsenical preparations the growth, ulcer or papules are seen healing or have disappeared within a period of 15 to 20 days. The disease cures in such a way showing no mark or any scar. In these selected cases none have reported relapse within this time (6 months). It is also on record in this hospital, that even if a case is given only three injections of any of the arsenical preparations no relapse have been reported. A very few cases, about 2%, have reported a second attack.

Conclusion.—It will be evident, from my investigation and treatment that every case of yaws if treated with any of the arsenical

preparation with the medicines as shown on the head of treatment, will surely cure it. I have also said about the difficulty of treatment and thus a full course of 6 injections of N.A.B. or Novarsan beginning from 0·30 grm gradually increased upto a maximum of 0·90 grm. This may be given in alternately with Bismuth. Dosage should be in accordance with the physical condition of the patient and then result will be excellent. It is also better to give an initial injection of 0·15 grm in some cases to get better result and to avoid risk of reaction. Moderate and gradually increased dose for some long period is better than giving a big dose in short period.

It is evident from all that I have mentioned above, that the disease yaws can surely be classed as a curable disease with the treatment as stated elsewhere. But the difficulties encountered specially in my experience which too has been mentioned, require the attention of the State authority (government) who must promulgate some legislation or other for each case of yaws to undergo a complete course of treatment. I cannot afford to forget that this too is a social danger and with this idea in view I can certainly ask the authorities concerned to lodge an all-out campagin against this *curable* disease, just like that of V. D. drive sponsored by the Government of Bengal under the supervision of the Director of Venereology, and Social Hygeine there.

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Prevention of Blindness*

DR. R. S. AGARWAL,
Delhi.

THE Government of India had appointed a Committee to enquire into the question of blindness in India and the Committee published a report offering their suggestions to combat this great problem. On the basis of this report Dr. P. R. Velayudhan Pillai in-charge of the Ophthalmic Hospital, Trivandrum, had in a report submitted by him brought to light the extent of the incidence of blindness in the Travancore State and suggested certain ways and means to combat the spread of this infirmity. Dr. Pillai's observations are almost on the same line as in the Government report. It was considered necessary to discuss this matter at a conference during my visit to Travancore. The State Surgeon-General, Dr. Pillai, the Ophthalmologist, the Director of Ayurveda, the Director of Public Health, the State Secretary and myself took part in the Conference. I put forward my views regarding the problem of blindness in Travancore and India. Everyone present in the Conference appreciated my suggestions and it was decided that the Government would send one or two eye specialists to Dr. Agarwal's Eye Institute, Delhi, for about three months' training.

The report on blindness in Travancore mentions various causes of blindness and suggests various measures to combat the diseases which lead to blindness. It recommends education, vaccination, nutrition, medication,

* Specially contributed to THE ANTISEPTIC.

operation, legislation etc. As regards the suggestions to prevent blindness due to small-pox, cataract, want of maternity care, injury, quackery and keratomalacia I have nothing to add to them and I think these suggestions will be very helpful. The report adds "it will be fair to presume that the increase of blindness during the years 1931–45 will be at least hundred per cent higher than the figures of 1931." I think before 1931 there was more illiteracy, less medical aid, less maternity care, less knowledge to prevent blindness than in the period from 1931–45. How is it then that the blindness has increased to hundred per cent during a period when there was more education and more medical aid? It indicates that there is something wrong in the system of education and in the methods of medical aid. Unless we are able to discover the mistakes and rectify them, we shall not be able to prevent blindness which is greatly increasing. Let us consider some facts without any prejudice.

Under the present system of education and the modern ways of civilisation there is a great strain on the minds of children, adults and old people. The eyes and mind are closely connected and when the mind is under strain the eyes also share that strain. The habit of straining for distance or for near visions leads to the loss of sight with or without errors of refraction. The doctor finds himself incapable to relieve the strain or to improve the sight if there is no error of refraction. If there is error of refraction, glasses are easily prescribed and the patient is usually satisfied. It is after some time that the patient finds that his sight has gone worse and that he needs a change of glasses. In this way the sight goes on deteriorating, the health of the eye suffers. A large number of blind persons are of old age. Most of the patients who become blind due to glaucoma, progessive myopia, detachment of retina, retinitis, optic neuritis, optic atrophy, choroiditis, hæmorrhage and cataract are over forty years of age and suffer from some form of error of refraction or mental strain in early stages. If the strain is not relieved by glasses then they suffer from some such diseases. These diseases are found usually in better classes of people who can afford for the treatment quite nicely. Many of them begin to attend the hospitals as soon as they detect the signs of strain and defective vision. In spite of the best help of the specialist and continuous visits of the patients the sight goes on deteriorating in most of the cases. The methods which are at the disposal of the doctors usually prove inefficient and in the end the patients are left to their fate.

The hospital is a sort of doctor's laboratory. If in this laboratory we are unable to prevent and cure errors of refraction and to relieve the strain and floating specks which are present in almost all cases who are losing their sight, then how can we hope to prevent blindness? If we can prevent and cure errors of refraction and the habit of straining, blindness will be much reduced in a few years' time.

To prevent errors of refraction and strain on the eyes in schools the authorities suggest detailed rules as to the size of types to be used in school books, the length of the lines, the distance between them, the distance at which the books should be held, the amount and the arrangement of the light, the construction of the desks etc. The Germans, with characteristic thoroughness, actually used all these methods. Risley has observed in his discussion of the subject in system of diseases of the eye that "the injurious results of the educational process were not notably arrested." Dr. Sidler Hugenia of Zurich expresses his opinion that "glasses and all methods now

at our command are of but little avail in preventing either the progress of the errors of refraction or of the development of the very serious complications with which myopia is often associated."

Venereal diseases are supposed to be the cause of retinitis, optic neuritis, optic atrophy, choroiditis etc., hence anti-syphilitic treatment or antitoxin treatment is adopted but really speaking the results are very poor, in spite of heavy expenses incurred in the blood examination and injections. The failure lies in determining the cause of such eye diseases.

A careful study of the subject will reveal that eye strain lies at the bottom of all such eye troubles. Syphilis or some other infection may increase the intensity of the strain. If the strain is not present, syphilis or other infection cannot cause any harm to the eye. Hence relaxation treatment to relieve the strain will prove efficacious in all diseases though other treatments, not harmful in any way, to combat the infection may also be adopted.

Strain.—The eye is one of the sensory organs and it functions without any effort on the part of the subject. The normal eye has the quality of seeing best the point on which it fixes itself. For example, there is a letter C on the Snellen test card. When the eye looks at the bottom part of C, the bottom appears more distinct than the top, and when the eye looks at the top, the too appears more distinct than the bottom. This quality of the eye is called central fixation, and in the normal eye it is so acute that even on a small letter it can be experienced. This is because the retina of the eye has a tiny point on maximum vision, called 'macula lutea'. When the eye makes an effort to see, the normal function is disturbed and sensitiveness of macula lutea is suppressed, and there is a temporary loss of central fixation. When the tendency of strain becomes habitual there is a continuous loss of central fixation, and this loss of central fixation leads to all sorts of eye troubles, functional as well as organic. If somehow central fixation can be improved, vision will automatically begin to improve and this means prevention of blindness.

Prevention.—Dr. Bates has discovered various relaxation exercises to improve central fixation, and in my experience these exercises along with sun treatment prove very efficacious. In many of the so-called incurable cases we can improve the eyesight in quite a short time. Many cases who were either on the road towards blindness or were actually blind got considerable improvement in their eyesight in Dr. Agarwal's Eye Institute, Delhi. Patients from all parts of India attend this Institute. The system of the treatment that this Institute follows is a synthesis of Allopathy, Ayurveda, and Dr. Bates' relaxation methods which have been fully explained in my books.

I herewith give the statement of Mr. R.V. Pillai, Bar-at-law, ex-Director of Nizam's Government Press, who was developing symptoms of strain which were leading him towards blindness.

"I have been suffering with floating specks for several years. I consulted several doctors. The first one was an I.M.S. doctor who had specialised in the diseases of the eye in England. After a careful examination he said that my case was one that could not respond to treatment. His advice was that I should not worry but avoid straining the eye as far as possible.

After two years I felt that my eyes got tired at the end of the office work, the letters became hazy, and at intervals the vision was misty. I consulted an ophthalmic surgeon of Lahore who was passing through

Hyderabad. He examined my eyes and said that I was running for cataract and there was no remedy in the world that could cure or prevent the progress of cataract and that I should bide my time.

"From time to time I consulted several specialists; they only prescribed glasses. The last one, an eminent ophthalmic surgeon, told me after dark-room examination that my left eye showed signs of cataract but that it was only incipient, the saving feature being that it would take about ten years or so to ripen and I should therefore change my glasses frequently.

"Gradually the trouble increased in my left eye. It used to get clouded: there were three such attacks with interval of three months or so. On the last attack which was of over ten days' duration I was ordered to undergo treatment with Dr. Agarwal. When I came to see the doctor I had certain reactions. My case having pronounced as almost incurable I was sceptical about nature cure methods.

"Dr. Agarwal proceeded with his technique. He at once declared that there was nothing organically wrong with my left eye, only it showed signs of strain. The first day's treatment gave great relief, the second day the vision became clearer, the third day the vision became almost normal. The results were amazing.

"All that I can say is what wonderful possibilities exist in the system of treatment followed by Dr. Agarwal. To me, it is par excellence."

To prevent deterioration of sight of students in the schools and colleges Snellen eye chart scheme may be introduced. A Snellen eye chart may be hung on the wall of each class-room and the students should read it daily from their seats silently, first with the eyes and then with each eye separately, covering the other eye with the palm of the hand avoiding any pressure on the eye-ball. The students may note that the letter regarded appears more distinct. Five minutes' practice at the beginning of the school hour is quite sufficient.

Students may be educated to blink gently, the right way of reading, writing, sewing, and seeing cinema. They may be taught how to relax by palming. All this work can be done by the teacher. This scheme will considerably decrease the number of students of defective eyesight in a year's time. Those who will have good eyesight will be able to maintain it by simple exercises. They will automatically learn how to relieve the strain if it was present at any time due to any cause.

A certain amount of supervision is absolutely necessary to make the scheme a success. At least once in a year someone who understands the method should visit each class-room for the purpose of answering questions and encouraging the teachers to continue the use of the method, and making some kind of report to the proper authorities.

Students and others suffering from trachoma and conjunctivitis can be very successfully treated in the early stages by the teacher. Such patients should first wash the eyes with water and then face the sun with the eyes closed for five or ten minutes. If convenient 0.5% Mercurochrome lotion or 1% Menthol solution or some other medicine may be applied.

Persons who are nearing old age should be encouraged to read the fine print without effort. Reading of the fine print daily is an aid to eyesight.

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Delhi.

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B. C. G. Vaccine in the Prevention of Tuberculosis*

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TUBERCULOSIS is the most widespread of all the infectious diseases, which has eaten into the core of the human society, striking with damaging effect two main sources of human well-being, health and work. Its importance consists not only in the number of deaths that occur, but also in the extent to which it disables the victims for long periods and renders them incapable of earning a livelihood.

It has been estimated that about one thousand people are dying every day of tuberculosis in India. Most of these people are young men and young women between the age of fifteen and thirty five. So with this great loss of life of these young people there is great economic loss to the country.

The disease is preventable, but unluckily we in India have not really taken up the question of its prevention seriously. The tragedy of tuberculosis is, that a vast majority of the public, has not got the proper understanding regarding the nature and sinister potentiality of the disease and they expect it to be cured and controlled like other diseases. The other and even greater tragedy is that tuberculosis does not create panic like other epidemics. The disease usually develops slowly and the patient dies slowly. As the patients suffering from tuberculosis are sick for some time before death, people get used to it and their death does not cause a stir in the public. If the same number of deaths that are occurring with tuberculosis every year, occurred even for one year from cholera or plague, the outcry would be tremendous. Unluckily in the case of tuberculosis, the problem remains a private concern between the patient, his relative and the doctor, and the public interest is not stimulated.

Tuberculosis disease is quite different from other infectious diseases in a number of ways :—

(1) Tuberculosis is an infectious disease, which means that it is communicable from one person to another. The disease is caused by small germs called *Tubercle Bacilli*. These germs are present in the sputum of tuberculous patients in such large numbers, that a single patient with cavitary phthisis is estimated to cough out millions of these germs in one day. Knowing that there are lacs of patients suffering from lung tuberculosis in this country, the huge number of germs coughed out by them can easily be imagined.

(2) Other infectious diseases like cholera, plague, small-pox, etc., break out only periodically, and they affect only a small part of the country, and die out with proper health measures in a few weeks or months. Tuberculosis, on the other hand, is present everywhere at all times.

(3) Patients suffering from other infectious diseases either get well or die of the disease in a few days, while patients suffering from tuberculosis live for months or years before they die, and thus they continue to be a source of infection to others for a very long time.

(4) Our ignorance about the nature of the disease, and our wrong methods of living, overcrowding, bad housing conditions, unhygienic personal

* Specially contributed to THE ANTISEPTIC.

habits and social customs, help to maintain a close contact between the patient and the public. These factors play a great part in the spread of the infection on a very wide scale.

(5) The human species, as a whole, has little resistance to infection by the tubercle bacillus, and in most civilized countries everyone gets infected during his life, Starting at birth the proportion of infected arises with each year of age so that fifty to eighty per cent of the population gets infected by the age of twenty.

This tuberculous infection, however, does not mean tuberculous disease in every case. In civilised countries, where the disease has lived for centuries, the people are not a virgin soil for this disease. On account of their high standard of hygienic living, and high resistance of body, a great majority of those infected, recover from this primary infection without even knowing it, and develop an acquired immunity or resistance towards the disease from the primary infection.

In India however the situation is different. The young children and people of this country have a low natural immunity and are susceptible to this disease. Their power of resistance is also low on account of malnutrition, under feeding, and their low standard of living, and so in a very large number the first infection develops into the disease. The inadequate facilities for the segregation and the treatment of the patients, not only keep the death role high, but help further in the spread of the infection and the disease.

Prevention of this disease, therefore, though possible is not an easy affair, especially when we know that the infection is widespread and the factors leading to the spread of the infection and the development of the disease are common.

Control of tuberculosis when reduced to its bare brevity may be described under the following heads :—

(1) Arrangements for early detection of the disease, and provision of beds for the patients in the hospitals and sanatoria, where they can be treated and also segregated from the public. At present we have got only 125 tuberculosis clinics and about 7,000 beds for the patients in different hospitals and sanatoria in India. This figure when seen in the background of mortality and morbidity present in this country, speaks in itself of its insignificance. Opening of tuberculosis hospitals and sanatoria to provide more beds to the patients is the crying need of tuberculosis control work.

(2) The improvement of the housing conditions, lessening of overcrowding is an important factor in lessening the spread of the infection. "A healthy dwelling is by itself a sanatorium", so the houses should be well planned, and should have some open space on all sides. These should also be kept clean. The other important thing is the propagation of proper health education to the public about the nature of the disease, and raising their standard of living by the improvement of their economic conditions.

(3) The immunisation of the people against tuberculosis by artificial means.

From the earliest human history it has been known that there are some contagious diseases from which a man seldom suffers twice. Jenner showed that this sort of immunity might be acquired without going through

a serious illness. He inoculated people with cowpox, which caused only trivial infection but rendered them immune to smallpox. To-day this calf lymph vaccination is the accepted and standard method for the prevention of smallpox.

Ever since the discovery of tuberculosis germ, attempts have been made to develop a vaccine which could artificially produce the acquired immunity in children, and primitive susceptible races. A vaccine is a suspension of the dead germs of a certain disease. It is injected in increasing doses to produce an acquired immunity or resistance to the disease. This does not work with some diseases as smallpox, in which case a vaccine of live germs is used. These live germs must be weakened so that they are not virulent enough to produce the disease itself.

In the case of tuberculosis, all experiments with dead bacteria vaccine proved disappointing, so in 1906 Calmette and Guerin in Paris started research into weakening the germs of tuberculosis to such a degree that these weakened germs could not produce disease in the human beings, but could still stimulate the body to develop acquired immunity or resistance After five years exhaustive research they succeeded in producing such a vaccine and they named it "B.C.G. Vaccine" (Bacille Calmette Guerin).

Now the next step was the introduction of the use of this vaccine to the children. Doctor Calmette stressed it to the medical man and the general public, that his vaccine had lost its disease-producing power, and was really safe to be administered to human beings, but inspite of all his assurances, the proposal to administer living tubercle bacilli to infants aroused strong opposition and there raged for some years a bitter and often highly prejudiced controversy which only died out after Weill-Hale in 1922 started to inoculate infants in Paris on a wide scale This was followed in other progressive countires and now the safety of this vaccine is universally accepted and nearly three million children have been inoculated with this vaccine in France alone.

It is a live vaccine and is issued in dated ampoules. It must be used like calf lymph before it deteriorates. Kept in a cool place the vaccine keeps its potency for ten days.

There are two periods of life when tuberculous infection is most dangerous, when there is greater chance of the first infection causing progressive disease and these are infancy and adolescence. The vaccine is injected to those infants and adolescents who have not been infected with the disease. This is found out by performing a simple test known as Mantoux test on all children to be inoculated with B.C.G. vaccine. All the Mantoux negative children are given an inoculation of B.C.G. vaccine.

The technique is very simple. The skin on the arm is cleaned with ether and three drops of B.C.G. vaccine are placed down the arm in a straight line almost half an inch apart. The skin under these three drops is scratched in the same day as in smallpox vaccination and these drops are allowed to dry. Care is to be taken that these drops are not wiped away, as some children may do, or this vaccination will have no effect.

The local reaction is usually slight, and takes the form of reddening and thickening of the spots which reaches a maximum in ten to thirty days. Six months later the marks usually disappear. There is no general reaction like fever or malaise, nor does the child find the local condition painful.

The inoculated children must be kept away from any source of tuberculosis (tuberculosis patient) for a period of six weeks. If any member of the family is suffering from tuberculosis and is living in the same house as the inoculated child, either the patient should be sent away to a sanatorium for a period of at least six weeks, or the inoculated children of that house be sent to some relatives where there is not tuberculosis in the house (this is very important). At the end of six weeks' period, the inoculated children should again be Mantoux tested, when they would show positive reaction. Should any child show negative result, he must be reinoculated but this is seldom necessary.

Up to this time this vaccine was prepared and used in Western countries alone. It has not been used in India for two reasons, firstly it could not be prepared in this country due to lack of facilities in the way of a proper laboratory and a specially trained staff, secondly as the vaccine deteriorates after ten days of its preparation, its importation from outside countries did not leave a good margin of time for its being used before its deterioration.

Now this B.C.G. vaccine is receiving the official blessing of the Government of the Indian Union and the first laboratory to prepare this vaccine is being equipped in Guindy near Madras and the first inoculation work may start in villages round about Madanapalle under the supervision of U.M.T. Sanatorium administration. A few more laboratories for the preparation of this vaccine are expected to be started in different parts of this country, and it is expected that an officially sponsored supply of this vaccine will be available before long for use in India.

Though the most important factor in lowering the incidence of tuberculosis is and will continue to remain proper understanding about the nature of the disease and a steady rise in the standard of hygienic living, still child vaccination with this vaccine may not be only of value but may prove quite effective and it is one of the least expensive means of prevention.

Harding Tuberculosis Hospital, Dharampore.

Classifications of Anæmia and their Treatment

L. M. SIMLOT,

Medical Officer, Saipura, Jaipur State, (Rajputana).

ANÆMIA is a condition of the circulating blood in which there are quantitative and qualitative changes in the red cells or in the hæmoglobin content of it.

The subject of physiology is one that I feel sure ought to take more of our attention than perhaps it does. So often we find ourselves dealing with slight errors and anomalies of physiology rather than pathological conditions and many of the anæmias fall into this type of disease. I would therefore like to invite the attention to a modification of a diagram showing the normal physiology of blood production and destruction.

* Specially contributed to THE ANTISEPTIC.

Physiology

Formation	Circulation	Destruction
1. Protein, Fat, Carbohydrate, Vitamins, Mineral salts, Water	R. B. C. 5,000,000	Reticuloendothelial system → Spleen → Iron
	H. B. 100 p.c.	
	C. I. 1·0 p.c.	
	Reticulocytes 0·5 p.c.	
	Icterus Index 4·6	
2. Iron	(Leakage-chronic hæmorrhoids, excessive menstrual loss etc.	
3. Erythrocyte maturing factors	85 p. c. returnable	Liver → Bile Salts

These are the three main factors in the production of blood and deficiency of any of these will give rise to anæmia: Nutritional deficiency due to a deficiency of any of the food factors, deficiency of iron absorption or utilisation or the specific type due to a deficiency or absence of the anti-anæmic or erythrocyte maturing factors. It may be due to aplasia of erythropœtic tissues or an insufficient supply or to efficient absorption.

The advantage of keeping such a diagram uppermost in one's mind is that we are not then so likely to place all our cases of anæmias into one category and not to think of the underlying cause.

Broadly speaking anæmia may be divided into three groups according to the size and hæmoglobin content of the red cells.

1. *Megalocytic* anæmia in which the red cells are abnormally large and well filled with hæmoglobin.

2. *The normocytic* in which there is no alteration in them but the total red cells are reduced.

3. *The macrocytic* in which red cells are smaller and contain less hæmoglobin than normal.

The following full classification is according to the deficiency that is the cause of the anæmia:

I. Anæmia due to deficiency of factors essential to normal blood formation:—

1. Iron—macrocytic anæmia due to deficiency of iron absorption or utilisation.

(*a*) Chronic nutritional hypochromic anæmia, chlorosis, and hypochromic anæmia of pregnancy; (*b*) Nutritional hypochromic anæmia of infancy.

2. Antipernicious anæmic factors:

(*a*) Addisonian-pernicious anæmia; (*b*) pernicious anæmia of pregnancy; (*c*) macrocytic anæmia of sprue, idiopathic steatorrhœa dibothriocephalus injection etc.; (*d*) tropical macrocytic anæmia; (*e*) macrocytic anæmia of liver disease.

3. Anæmia due to deficiency of Vitamin C.

4. Anæmia due to deficiency of Thyroxin—myxœdema.

II. Anæmia due to excessive blood destruction:—

1. Primary hæmolytic anæmia: Familial and acquired acholuric jaundice.

2. Secondary hæmolytic anæmia. Paroxysmal hæmoglobinuria; acute hæmolytic anæmia of Lederer; Sickle cell anæmia; hæmolytic anæmia of infancy.

III. Anæmia due to inhibition or aplasia of the bone marrow:—

1. Idiopathy.

2. Secondary causes—heavy metals, benzol group, poisonous gases, radio active materials.

IV. Anæmia due to blood loss:—

1. Hæmorrhages due to hæmorrhagic disease. (*a*) Primary, (*b*) Secondary, (*c*) Hæmophilia.

2. Post hæmorrhagic anæmia may be acute or chronic.

Miscellaneous:—(1) Splenic anæmia (Bante's disease); (2) polycythæmia: (*a*) polycythæmia vera; (*b*) enterogenous cyanosis; (3) leukæmias; (4) lymphatic diseases; Hodgkin's diseases; lymphosarcoma; (*b*) agranulocytic angina; (6) injections mononucleosis; and (7) reticulo endotheliosis; Gaucher's disease; Niemann Pick's disease; Hand-Schuller-Christian disease.

The diagnosis of the different types of anæmia is usually fairly easy and the important guides are:—(1) the history of the patients; (2) the laboratory findings; (3) a complete blood examination; and (4) a urine and stool examinations.

There are two blood examinations that are of special help in arriving at a correct diagnosis, namely the size of erythrocytes (normal size in between 5·5 microns and 8 microns with an average at about 7·7 microns, and the average size of the red blood cells in the bone marrow is about 7 microns to 10 microns and even upto 15 microns). And the second examination is the reticulocyte count.

Treatment.—As regards treatment I am only dealing here with the iron deficiency anæmia which is found in some degree in most of the cases.

1. *Prophylactic measures*:—Under normal conditions the normal iron need of an individual is approximately 10 mg.m. daily, but it varies further according to metabolic activities and in women according to the menstrual loss and with pregnancy. This much of iron would normally be found contained in a diet with a quantity of green vegetables. Under normal conditions this is enough for the need of the individual but may become inadequate if there is excessive menstrual loss or during the added strain of pregnancy the supply may not be adequate to the requirements.

The first step in the treatment of anæmia in women (as majority of chronic deficiency anæmias is found among women) is to attempt prophylaxis by seeing that the patient has an adequate diet and correcting any gynæcological faults either organic or endocrine in origin.

During pregnancy an attempt may be made to increase the amount of the iron containing foods and of the general nutrition of the diet.

For the general causes education of the public to an appreciation of a more balanced diet is most important.

2. *Curative measures* :—Treat the underlying cause first.

3. *General measures* :—(*a*) Rest :—During the period of treatment for anæmia the patient must *rest* in bed. He may be allowed to attend to the calls of nature but otherwise he should be strictly in bed.

(*b*) The often forgotten *symptomatic treatment* that makes the patient feel better during the time that the blood regeneration is taking place and makes him feel that something more is being done for his condition.

1. *Gastro-intestinal symptoms* :—The main being (*a*) *Anorexia*—Most of the patients have an achlorhydria and therefore are given—

℞ Acid Hydrochlor dil ... oz. i
Glycerine Pepsin (B.P.C.) ... oz. ii
Sig.—*dr.* i during meals daily.

Many have an excessive mucous secretion in the stomach which may give rise to the achlorhydria, and an Alkaline powder given after meals may prove beneficial—

℞ Soda Bicarb ... oz. i
Mag Carb ... oz. i
Bismuth Carb ... oz. i
Sig.—dr. i T.D.S.

(*b*) *Constipation* :—May be troublesome and the best treatment is mineral oil with Cascara, Agarol, Petrolagar. Vitamin B given as Bemax, Marmite or Yeast tablets.

(*c*) *Glossitis* :—Sometimes needs treatment as a symptom but in the ordinary anæmias there is seldom need to give any special treatment.

℞ 2½ p.c. Chromic Acid in water (gr. 10 to oz. i)
or 2 p.c. Gentian violet lotion is good local application.

(*d*) *Dysphagia* :—Needs no definite treatment, assurance that it will go as the anæmia gets better.

2. *Nervous symptoms* :—For the various neuritic symptoms give vitamin B as Marmite or Bemax or Yeast tablets.

In the very severe cases injection of vitamin B daily. For the anxiety state that so often is present due to family worries,

℞ Bromide mixture at bed time or Luminol gr. ½ to 1
at bed time.

4. *Specific iron therapy* :—Iron salts are used in many tonics but the amount of iron in such is usually of a negligible quantity and hence most of the commercial compounds are of little value.

There are five main compounds of iron used.—(*a*) Metallic iron; (*b*) ferric salts; (*c*) ferrous salts; (*d*) inorganic salt with complexions; and (*e*) organic iron combinations.

Soluble iron salts give rise to unpleasant taste, stain in the teeth, irritate the stomach and act as astringents causing constipation and colic pain.

The Ferric salts are most likely to cause these undesirable actions and so on the whole are ineffective in the treatment of anæmia. The last group of organic combinations are very good to take but are useless in the amount of iron they supply and are also not effective in severe anæmia.

Reduced iron is effective but must be given in large doses. The soluble Ferrous salts are the most effective but have the big disadvantage of being very rapidly oxidised to the ferric state. Therefore the insoluble Ferrous salts are of more use and most popular in Blands pill or the Iron Carbonate Ferrous Sulphate in tablet form from 9 to 18 grains is effective.

The disadvantage of these preparations is again the tendency for them to become oxidised and become so hard that they pass through the alimentary canal unchanged.

The scale preparations are therefore under all circumstances the most reliable.

Parenterally iron preparations are not of much value as it is difficult to give large doses without giving rise to toxic symptoms.

Main *success* of *treatment* is to give any suitable preparation in sufficiently large doses. 60 grs. to 120 grs. of Ferri et Amm. Citras daily is as good as any.

℞ Ferri et Ammonium Citras ... gr. xxx
Glycerine ... ℥ i
Aqua ad ... ℥ i T.D.S.

The standard of cure should be to aim at getting a rise of at least 1 p.c. of hæmoglobin for each day of treatment.

Perphaps a more recent line is the addition of some copper and manganese to the iron preparation as catalyst and one does get effective results from it.

Cases and Comments

An Abnormal Fœtus

P. NARASIMHAMURTY, L.M.P.,
Challapalli, Kistna Dt.

A PATIENT, P. V. L., aged about 38, 9th para, was brought to me on 5-4-48 (at 6 p.m.) in labour. The woman was in labour since 48 hours and the membranes ruptured at 6 a.m. on 5-4-'48 and the foot of the fœtus was seen coming through vagina. The attending midwife thought it to be a case of breech presentation and brought the patient for proper medical aid.

On general examination the patient was very weak and in an exhausted condition. She was extremely anæmic. On examining the uterus, I found the labour pains were regular and weak. The head of the fœtus was found on the left side and a soft mass on the right. The fundus of the uterus was 3" above the umbilicus. On P.V. I found one leg of the child coming out. The contents of the fœtus were foul smelling evidently suggestive of fœtal mortality. The leg was unusually small and thin.

I could not decide the nature of the presentation in this case for the following reasons—

(1) To think it to be a breech case the right side of the abdomen contained a soft mass suggestive of fœtal parts and the left side contained the head of the fœtus and in view of the tiny leg coming out, with the cervix practically well-dilated (almost complete), there ought not to be any difficulty in the breech coming out.

(2) To think it to be a transverse position one leg has already come out and the other tiny leg need not present itself as a large soft mass with the palpable feeling of fœtal parts on the right side.

The case appeared to be an abnormal one and the party unable to seek medical advice at H. Q. hospital decided to be under my care. I put the patient under $CHCl_3$ and I attempted to do it as a case of breech. I tried to bring down the other leg and succeeded. I then tried to extract the breech and the delicate legs with their putrefactive changes were detached during traction. The traction was indeed gentle. The buttocks could not be felt and on the other hand the vertebral column was felt. The case was now one of Tr. presentation. Internal podalic version was done and two more legs were brought down. The breech which was big was also extracted and two hands on either side were also seen coming out. There was slight difficulty in the extraction of the after-coming head and it was done by shoulder traction and jaw flexions. Along with this another head also came out connected by a separate neck to the thorax of the fœtus. The third stage of labour was easy and a simple placenta came out. With proper treatment the patient made good recovery.

Points to note :—The case was neither breech nor transverse and it was difficult to decide the nature of fœtus. Whenever there is an abnormality in the labour with tiny hands or legs protruding the possibilities of a monstrous fœtus should be borne in mind.

Mavelikara,
Travancore.

Anaphylaxis after an Injection of Tetanus Anti-toxin

CH. KRISHNAMURTHY,
Civil Assistant Surgeon, Govt. Hospital, Chicacole.

Mrs. A., 25 years, had a motor accident and was given a prophylactic injection of tetanus anti-toxin 3000 units (Lister Institute). Almost within about 10 minutes after the injection she was rushed back to the hospital in a severe condition of shock. Her face, lips, tongue and throat were swollen, the whole body was cold and clammy with beads of perspiration on the face. She was unable to talk, saliva was dribbling through the swollen mouth and she feebly complained of constriction in the chest and great difficulty for breathing. Pulse was feeble and rapid. An injection of 10 min. of Liq. Adrenalin 1 in 1000 was at once given and inhalations of Ammonia and Amyl. Nitrate for some minutes. This rallied her somewhat, a dose of stimulants mixture was next given which she could swallow with some effort. As she was still in a condition of shock, I accompanied her in her car to her house. On reaching home she began to have severe rigors followed by violent urticaria. A dose of Calcii Ostelin (Glaxo) 2 c.c. then available was given intramuscularly and the wheals were sponged with Liq. Plumbi. This relieved her of the itching. She now began to feel sick and her desire for vomiting was irresistible. She used to tickle her fauces with her fingers and bring out some mucus. While the sickness continued, she began to complain of severe pain first in the epigastrium and later over the rest of the abdomen. The pain was intermittent and was so severe that she had to be given Morphine, Atropine and Hyoscine hypodermically. This relieved her for a few hours and the sickness and pain recurred. A hot water bag to the abdomen to relieve the pain excited the urticaria again. Bromide and Calcium mixture was of no avail. She had again to be injected for the pain for the second time. This relieved her as usual. Bowels were moved with a Glycerine enema but the result was poor, a dose of castor oil was given next but was brought out almost at once. The whole night she had burning sensation of the body and a rise of temperature, 100·4°F. She was getting exhausted from frequent vomiting and began to have attacks of faintness and carpopedal spasms. As the sickness continued, teaspoonful doses of Soda Bicarb in 8 ozs. of water were given twice. In spite of all this, she still had nausea and used to tickle her fauces with the fingers and bring out some watery mucus. Large doses of Kaolin, Cal. Lactate, Mag. Carb. Levis and Bismuth were given every four hours. By the end of 24 hours the anaphylactic shock disappeared, and she began to feel better. A soap water enema was next given with good result. The sedative and antacids with carminatives and Cal. Lactate were next continued by mouth. In another 48 hours, she was alright though she complained of weakness and turgidity of the soles of her feet.

Cases of anaphylactic shock are met with generally, perhaps more commonly after injections of N.A.B. I reported two cases following : (1) an injection of Aolan published in the ANTISEPTIC, May '43. (2) After a Pelonin injection published in the ANTISEPTIC, April '43 (case of Primary B. Complex deficiency with Vitamin A deficiency). One can never say which patient is likely to have it and after what injection and the same patient might not have had it with the same preparation previously (the case referred to above after Aolan). One thing appears probable that those with a low calcium content are more prone to get these attacks. Perhaps the previous history of the patient may help a good deal. If the patient is subject to allergic attacks a preliminary Adrenalin injection would fix the calcium ions and lessen or even abort anaphylaxis. The case under report appeared extraordinary for the series of complications manifested and I have therefore ventured to publish it.

A Complicated Case of Enteric Fever

V. S. R., H. M. 30 years, sought admission on 15-9-'47 at about 6 p.m. in a moribund condition. History of fever and delerium for about 19 days and unconsciousness for a week. Was being treated by Ayurvedic doctors and a compounder who had given him some injections. Temperature normal—on admission, pulse 108 per minute, feeble. Patient more or less unconscious, abdomen distended, passing urine in bed. Heart sounds feeble

and muffled. No palpable liver or spleen. Lungs nil abnormal. Patient had a vague look about him. From the history and the physical signs the case was taken to be an enteric group of fever with meningism as a complication. Intravenous glucose 25% 20 c.c. was immediately given as his general condition was not too good. Glycerine enema—result poor—Turpentine stupes. It was decided to give Penicillin for his meningical complication. Luckily, a supply could be got and 40,000 units was given at 9 p.m., 30,000 at 1 a.m. and another 30,000 at 5 a.m. intramuscularly.

On 16-9-'47 the patient was fairly conscious. Temperature 101°F and he could put out his tongue when called but was not able to talk. Respirations rapid. Rales in both lungs. More Penicillin could not be got locally. M. & B. 693 was given instead, two tablets every 4 hours.

On 17-9-'47 temperature normal. Patient began to have vomiting and nausea, M. & B. 693 stopped.

On 18-9-'47 a further supply of Penicillin could be got and was given 40,000 units at 9 a.m. followed by 25,000 at 1 p.m., 25,000 at 5 p.m., 25,000 at 10 p.m., 25,000 at 2 a.m., 30,000 at 6 a.m. and 30,000 at 9 a.m. were given intramuscularly, a total of 2 lac units this time.

On 20-9-'47 lungs clear, patient more conscious but continues to pass urine in bed. Another 1 lac units of Penicillin in 4 doses was given, a total of 4 lac units since his arrival.

On 26-9-'47, understands questions, not passing urine in bed, answers questions in whisphers, tries to get up from bed.

On 29-9-'47 able to talk; said to have complained that snakes were biting him at night.

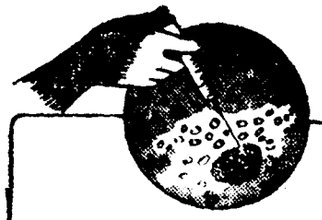
On 2-10-'47 talks freely though with slight effort; answers questions rationally.

On 3-10-'47 has two abscesses one on left hip and another in the right upper arm, result of injections given outside. The abscesses were incised and drained. A good lot of pus and gas escaped. The abscesses were slow to heal and the discharge was profuse. A further 1 lac units of Penicillin was given in 3 doses of 40, 30 and 30 thousand units on 28-10-'47 and the abscesses healed. The patient had an attack of B. dysentery from 9-10-'47 to 12-10-'47 passing 30 to 40 motions per day. Motions under microscope containing macrophages and cellular exudate (+ + +).

He was treated with Sulphaguanadine and A. D. Serum and made a recovery.

The patient was discharged cured on 15-11-'47 and is alright.

Chicacole,
N. Vizag Dt.



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Hydatid Mole

V. R. KULKARNI, L.R.C.S., (Bom.),
Registered Medical Practitioner, Chalisgaon, E.K.

A lady came to me with the following history :—

(1) Middle aged Hindu lady.

(2) Multipara.

(3) *Amenorrhoea—4 months' duration.*

(4) Bleeding per vaginum—continuous oozing.

(5) No pain of any nature.

(6) No history of trauma.

(7) Continuous vomiting and diarrhœa with extreme emaciation, not able to retain even water.

On examination.—(*a*) I found that the patient was very weak, emaciated and anæmic.

(*b*) On P. V. examination os dilated with oozing of red discharge.

(*c*) On palpation of the abdomen—*the height of uterus was equal to that of 8 months pregnancy* a striking feature in contrast with the item No. (3) in the history given by the patient above.

(*d*) No fœtal parts were palpated.

These facts, No. (3) item. *i.e.*, history of 4 months amenorrhœa and height of uterus that of 8 months pregnancy and no fœtal parts felt, gave me suspicion that there is no normal pregnancy nor normal fœtus inside, but probably vesicular mole.

Treatment :—I.V. Glucose 25% 25 c.c. ;

I.V. Coagulen (Ciba) ;

I.M. a few injections of Liver Extract.

The patient was then shifted to a Civil Hospital for artificial evacuation of the uterus.

Under $CHCl_3$ anæsthesia a vaginal speculum was applied and the os was dilated by passing cervical dilators of increasing sizes ; intra-uterine ovum forceps passed. The contents were pulled out and to the surprise of all of us, bunches of grapelike mucus polypoid growths nearly about a half bucketful were removed.

Curetting of the uterus was performed. Again injections of Coagulen (Ciba) were given. The patient made uneventful recovery and after one year delivered a normal living child, ruling out any further possibility of epithelioma of uterus.

Conclusions.—1. Though this condition is very rare (1 in 1000) still possibility of this should not be overlooked in every case of bleeding P. V. in multipara.

2. There is a striking feature. The history of amenorrhœa of 4 months duration and height of uterus that of 8 months suggest that there is no fœtus inside.

3. Manual careful examination should always be done to find out whether parts of fœtus are felt.

The above mentioned Nos. 2 and 3 observations were completely lost sight of by some practitioners who were treating the case before finally it came to me.

4. X-ray of the abdomen should be always taken wherever possible.

5. No time should be lost, but the evacuation of uterus done immediately to avoid danger of excessive hæmorrhage or exhaustion.

6. Early evacuation and thorough curetting of the uterus may save the patient's life and from the danger of further epithelioma of the uterus.

I thank Dr. Kalla, the then Civil Surgeon, Jalgaon, for his prompt treatment and valuable help.

Chalisgaon, E.K.

A Case of Otitis Media

MISS. K. PANSE, L.M.P. (C.P.),
Poona.

I LIKE to report the following case with the hope that it will be of some help to my medical friends.

The patient is a boy of 16 years, Brahmin by caste, schooling.

HISTORY :—Two severe attacks of 'otitis media' about 10 years back, at the interval of 6 months. Both the ears were affected. The left ear had maggots in it. Allopathic and Ayurvedic medicines were tried. The right ear was cured but the left ear kept on running for the last 10 years. Pus was rather thin but foul smelling. The boy had to clean the ear twice or thrice a day. He had gone a little deaf.

I thought of 'Penicillin' treatment and started it on 20th Dec. '47.

Penicillin (Glaxo) 3 lacs units was given I.M. in doses of 20,000 units every 3 hours. Along with 'Penicillin,' 'Ciloprin' (Cilag) ear drops were used locally. About 5 drops of 'Ciloprin' were put in the ear 3 hourly, after each Penicillin injection.

Discharge from the ear stopped only after 5 injections—1 lac units of 'Penicillin.' Still another 2 lacs units was given with the idea of complete and permanent cure.

The ear got absolutely dry. After three days a little watery discharge reappeared. Every 2—3 days there used to be a little discharge.

Again Penicillin (Glaxo) 2 lacs was given I.M. in doses of 50,000 units every 6 hours.

Discharge from the ear stopped completely. Still after a week a third course of Penicillin, in doses of 50,000 units every 6 hours, was given and 'Spirit Boric' drops were put in the ear daily for about a fortnight or so.

The boy is now absolutely free from the complaint about his ear which he had for the last 10 years. Hearing is also improved and deafness as such is nil. He had had no toxic symptoms throughout the treatment with so much 'Penicillin.'

C/o. Dr. (Mrs.) Vijaya Gunte,
497, Budhwarpeth, Poona 2.

Hydatid Cyst of the Liver

Cholecystectomy and Marsupialisation.

C. H. VENKATESWARAN, M.B.B.S.,
Medical Officer, Govt. Hospital, Kumbakonam.

Name of patient :—Periyanayakam, Hindu woman, aged 35, admitted on 9th March 1948.

Complaint :—Painful swelling on right side of the upper part of the abdomen.

Duration :—Three years.

History, past :—During childhood she had dysentery and was closely associated with a dog for three years when she was newly married twenty years ago. She has four children. The last one is eight years old.

History, present :—Complaint started three years ago as a swelling over the region of the liver which gradually became larger. Now the pain is severe. She feels fairly comfortable when standing or walking but cannot lie down.

General condition :—Poor—emaciated.

Local condition :—There is a rounded cystic swelling over the right hypochondriac region as big as a large unhusked cocoanut. It is painful on palpation. Dullness continuous with the liver and the thin edge of the right lobe of the liver could be distinctly felt. The swelling is beneath the edge of the liver. There is no thrill on percussion.

Laboratory examination :—Urine—nil abnormal; motion—no ova or amobæ; blood—HB 80%, differential count—polymorph 54%, lymphocytes 20%, eosinophiles 22%, large mano 4%. B.P. 135/98.

Diagnosis :—Hydatid cyst of the liver.

Operation :—9th March 1948 under spinal Nupercaine 10 c.c. Right para median upper abdomen incision.

A tense rounded cyst on the under surface of the right lobe of the liver adherent to and inseparable from the gall-bladder. With a Potain's aspirator the clear fluid was evacuated. The vessels and duct of the gall-bladder were separately ligatured, and the gall-bladder along with a portion of the cyst wall removed. The cyst wall went up to the diaphragm above. There was one daughter cyst as big as a large orange inside the main cyst. The cyst wall marsupialised and stitched all round to the peritoneum with a large drain,—gauze rolled in glove rubber, inserted in the middle and the abdomen closed.

Progress:—The drain was removed on the 4th day. The patient made an uneventful recovery. The sutures were removed on the 12th day and the patient discharged cured on 9th April 1948. The fluid from the cyst wall was clear; no albumin but contained chlorides. No booklets were seen under the microscope.

A Case of Tetanoid Spasms from Worms

CHHOTALAL T. DHRUVA, L.C.P.S. (Bomb.),
Medical Officer, Kathiawar.

THE round worm would seem to be particularly prone to induce convulsions. Nor need we wonder that such is the case inhabiting the intestine, as they may do by hundreds, at the same time of life, when the nervous system has not yet reached the stable condition it assumes in healthy adult age.—*Dr. Goodhart's Diseases of Children.*

But that such convulsions should follow in an otherwise healthy, fairly adult age of 26 is remarkable. I therefore send the notes of one such case who came under my treatment in February 1948.

A young Hindu female of 26 came under my treatment, complaining of spasms of muscles of the whole body, the complaint being of eight days duration. No history or signs of injury or bruising was visible. No suspicion of any poisoning. She gave history of cold with fever and rigors just before the spasms began.

On admission almost all the muscles of the body were found in a more or less rigid state, specially those of neck and abdomen, lockjaw is not marked, episthotonos slight during the spasms. The spasms cannot be excited by touch or noise or other irritation, nor is her mental condition at all irritable or anyway affected. There is nothing else to note after a systematic examination.

Treatment.—Pot. Bromide and Chloral Hydras (15 gr. each) were given every four hours on admission, in addition to which Ol. Recini 6 dr. were administered the next day as the bowels were cosative. Three days after, the patient passed one round worm wherefore

℞ Santonine	...	gr. ii
Soda Bicarb	...	gr. iv
Sach Alba	...	gr. v

were given at bed time and the castor oil repeated. Next morning mixture containing Pot. Bromide and Chloral Hydras were continued. The patient thereupon passed thirtyfive worms during the day, after which the rigidity was noted to be less. The same treatment was intermittently continued for some days more when worms were being passed. The patient was feeling exhausted from purging. As no more worms were being discharged, Bismuth and Morphia as also Mist Ferri Perchlor were given and the patient was at last discharged perfectly cured free from any rigidity or spasms exactly after one month's treatment. In all the patient had passed nearly eightyfive worms.

The patient being a female of twenty six and perhaps of a nervous diathesis, where nervous system was not yet in a stable condition, Dr. Goodhart's words may still apply to this case.

Charadva, (via Halwad)
Kathiawar.

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Honorary Medical Officers

THE Government of Madras have issued revised rules regulating the recruitment and conditions of service of Honorary Medical Officers in Government medical institutions in this Presidency. In doing so, they have scrutinised and studied the reports submitted to them by the Medical Reorganisation Committee through the Surgeon-General. Before we proceed to examine the revised rules on their merits and express an opinion on the same, it will be of advantage to our readers if we place before them the historical background of this question, that is to say, the agitation that was carried on for nearly three decades to force the Government to appoint honorary medical officers in Government hospitals, with a view to enable them to understand how far and to what extent Government have yielded to public opinion in regard to this matter.

In the budget provision for Medical Relief in our country a very large slice is eaten away by emoluments to medical officers in charge of these institutions Even in countries of the West like England where the *per capita* income is large and the national income huge, it was felt that the Government could not afford the huge expenditure on medical officers and, therefore, in addition to the appeal that was made to private philanthropists to come forward, found and conduct a number of medical institutions for the service of humanity, the system of honorary medical service was devised with a view to minimise the administrative charges as far as possible, so that the money thus saved could be spent profitably towards extension of medical relief and opening of new medical institutions wherever necessary. The fact is that medical institutions in England are to-day manned to a very large extent by honorary medical men, thereby enabling the Government to extend medical relief far and wide.

While such a scheme was considered necessary in a country rich in every sense of the term and capable of meeting the expenditure, however huge it might be, it goes without saying that in a poor country like India, ill-developed and depleted of its resources by various reasons—it is unnecessary for our purpose here to catalogue the various ways and means by which this drain was brought about—the introduction of such a system

with a view to reduce the overhead charges was not only necessary, but was also urgently required if medical relief which is so utterly inadequate to-day is to be extended and the responsibility of the State towards its citizens of assuring them positive health is to be satisfactorily and efficiently discharged. It was also thought advisable to raise and improve the standard of medical relief by affording facilities to medical men to take advantage of the large amount of very good clinical material available in our State hospitals, so that after a specified term these honorary medical officers could go to the rural areas with added experience and knowledge to spread medical relief.

It was with this idea in mind that our Senior Editor, during his term of membership of the Madras Legislative Council in the early twenties of this century, pressed and pressed hard on the attention of the Government of Madras the desirability—nay the necessity—of introducing such a system in the Madras Presidency with a view to enable the Government to divert a good portion of the Medical Budget towards the extension of medical relief to areas which were hopelessly lacking in these essential requirements. Thanks to the response made to this representation by the late the Rajah of Panagal who was then in charge of the medical portfolio in the then diarchic system of Government, the suggestion was accepted and the scheme was introduced as an experimental measure in the City hospitals. If the experiment which proved successful beyond all expectations had been gradually extended as it should have rightly been done, we would by now have reached a stage when Government medical institutions in the Province would be manned to a very large extent by honorary medical men, and the Government enabled to save a large sum annually in overhead charges and to utilise it for the extension of the much-needed medical relief in rural areas. But this was not to be. Vested interests were up against it, and put every obstacle in the way of the scheme being worked successfully. Facilities for service were either denied or made difficult to secure, and pin pricks increased, with the result that the Service failed to attract men and women of proper calibre, thus affording loophole to vested interests to pooh-pooh the experiment and scotch it, if possible. This, in short, is the past history.

Let us now examine the revised rules framed by the Government of Madras. In doing so, we should keep in mind the fact that the political set-up has completely changed, vesting full authority in the hands of the representatives of the people to so order things as to suit the best interests of the country and to meet the growing needs of a growing population. The revised rules begin with the introduction that "honorary officers *may* be appointed to all Government hospitals and teaching institutions at the discretion of the Government." When the need for the appointment of honorary medical men has been realised and realised fully, why should it be made *permissive* only instead of being made obligatory as it should rightly be, passes our comprehension. Further, the qualification imposed by the use of the phrase "at the discretion of Government" is not only uncalled for but wholly unnecessary, since it should not be difficult for the Government to secure as honorary medicos as many as may be required and necessary. We would therefore suggest the desirability of the substitution of the word "shall" for "may," and the deletion of the phrase "at the discretion of the Government" at the end, and the substitution thereof by a provision that 75 or at least 50 per cent of the medicos shall be honorary.

According to the new rules there shall be three classes of honorary medical officers, *viz* : (1) Honorary Surgeons and Physicians, (2) Honorary Assistant Medical Officers (Senior), and (3) Honorary Medical Officers (Junior). In view of the great responsibility that devolves on these officers, one cannot question the stages fixed to enable one to reach the top rank. But there may be persons of exceptional merit and experience whose direct appointment as Honorary Medical Officers will be conducive to the best interests of these institutions. No provision has been made for giving such eminent medical men a chance to place their services at the disposal of the suffering public.

Regarding qualifications, a difference is made between teaching and non-teaching institutions, and in regard to teaching institutions the rule lays down : "A candidate for appointment as Honorary Medical Officer (Physician or Surgeon) should possess the higher Post-Graduate Degree of M.D., M.S., M.R.C.P., F.R.C.S., M.R.C.O.G., or equivalent qualification, being a qualification prescribed by the University for the particular post." This seems to be a tall order, and the insistence of this higher qualification will debar those who, though not possessing the required qualifications, are, none the less, fully able and competent to discharge the onerous task equally well, if not better than those who have been lucky enough to secure the qualification prescribed. We think that so far as non-teaching institutions are concerned, Government need not be so very meticulous to require the selected candidates to possess high post-graduate qualifications.

With regard to selection for appointment, we understand that appointments to teaching institutions will be made by the Government on a consideration of the recommendations made by the Surgeon-General who, in making such recommendations would consult a Committee consisting of the Principal of the Teaching Institution, the Superintendent of the attached hospital and one honorary medical officer on the staff. In regard to non-teaching institutions in the city the same principle will apply except in the matter of the constitution of the Committee which will consist of only two persons, the Superintendent of the Hospital concerned and one Honorary Medical Officer on the staff. In regard to mofussil hospitals the District Medical Officer and one honorary medical officer of the District will constitute the Committee. It has not been made clear by the Government as to who will select the Honorary Medical Officer. Will it not lead to undue and unnecessary importance being given to one particular Honorary Medical Officer in selecting a brother honorary medical officer? It should be possible to include in the Selection Committee an independent medical practitioner like, for example, the President of the Indian Medical Association, Madras, or at the headquarters station where such selection is made. This will undoubtedly give the Selection Committee a certain amount of independence and uprightness which are very necessary if such Selection Committees are to infuse confidence and enthusiasm in the candidates themselves.

There is not much to be said in regard to the tenure of office of these Honorary Medical Officers, but the same cannot be said in regard to their removal. If the work or conduct of the honorary officer is unsatisfactory, or if it is considered that his or her professional ability is not upto the required standard, it is of course necessary to terminate his or her service. But who is to be the authority that should judge it? We think it

absolutely necessary, in fact obligatory on the part of the Government, to enable the affected Medical Officer to appeal to a higher appellate authority, whenever his professional or future career is at stake. The Government themselves could possibly have no objection to vesting this appellate power also in the Committee which they themselves, we presume, will constitute, for their appointment.

As the Government themselves have reserved the right to amend or to add to these rules as they deem fit, we think the amendments we have suggested above are absolutely necessary not only to make the rules workable, but also to ensure the efficiency of these institutions. We trust Government will appreciate the merit and soundness of these suggestions and incorporate them in the rules in the larger interest which they, in common with us, must have at heart.

Caste Distinction Again

"I AM sure Ayurveda will in course of time come to mean a system of medicine and surgery based on accurate knowledge of the body and mind of human beings which will prevent and cure diseases, promote health and well being and alleviate pain and suffering."

The above observation was made by the Hon. Shri B. G. KHER, Premier of Bombay, while inagurating the Maharashtra Prantiya Vaidya Sammelan at Chembur, a suburb of Bombay, last month. In the same speech he gave the assurance that the Government would do everything in their power to foster the Ayurvedic system of medicine. But it was not an unreserved support that he offered. He added: "If Ayurvedic doctors are to be given all the privileges that allopathic doctors possess, they must be able to treat all the diseases that the allopathic doctors can treat. It is therefore necessary that they should know something of modern surgery and midwifery." It might be, as observed by Dr. U. KRISHNA RAU, in the course of his inaugural address at the twenty-third annual meeting of the Coimbatore District Medical Association on May 14, 1948, that Indian Medicine as practised a century ago when the allopathic system was practically unknown in this country, was considered scientific according to the then standards.

But modern medicine has advanced and is advancing by leaps and bounds every day, something new being found out as a result of careful and painstaking research. But the Indian systems have remained stationary and have to a very large extent gone backward too as a result of the failure of the votaries and exponents of the system to move forward with the times and carry on researches to make them scientific and suitable to present day needs. While therefore we have no objection to the practice of the Indian systems of medicine we have constantly and persistently held the view that if these systems are to be reorganised they must as a result of further researches be proved to be scientific. It is in this view we have been and are against an admixture of the two systems, the allopathic and the indigenous, which will lead us nowhere.

To establish the Indian systems of medicine on a scientific basis researches should be carried on on a wide scale by the exponents of the system, and those taking to the study of these systems must be in a position

to equip themselves for the great task that lies ahead of them. Holding this view, we consider that the decision of the Government of Madras to continue the School of Indian Medicine along with the College of Indian Medicine will lead to two grades of qualifications and extend the caste system. There are already two castes, the Allopathic and the Ayurvedic, and this will introduce sub-castes within the Indian systems of medicine, for the abolition of which in the allopathic system we had to fight for very long and very strenuously too. The introduction of the caste system by establishing two types of education in Indian Medicine will create the superiority and inferiority complexes amongst the votaries and is hardly conducive to the advancement of these systems which the Government have at heart. Let the Indian systems of medicine be developed, but let their development be on their own lines and on their own theories. If the Indian systems of medicine are to be developed on sound lines, the proper course would be the establishment of Chairs in the Indian systems in the present medical colleges for the post-graduate study of students who have completed their course in the allopathic medical colleges, to enable them to obtain the requisite knowledge of these systems so that they can with the additional knowledge acquired be able to serve ailing humanity. And this is the one and only way of making these systems of medicine useful to the public which the protagonists and exponents of these systems have at heart. We trust that the Government of Madras will give due consideration to this most important aspect of the matter and adopt it instead of creating more castes and sub-castes which will lead nowhere.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Dissecting aneurysm of the aorta: A new sign.—J. A. Nissim, North Staffordshire Royal Infirmary. *Brit. Heart J.*, *8*: 203–206, October 1946.

A case of dissecting aneurysm of the aorta in a 71 year old male is presented. The patient had had a severe pain a little below the umbilicus, which spread to the epigastrium and lower chest and around the back. There was slight dyspnea. He had a history of high blood pressure and typical anginal pain. There was also pain suggestive of peptic ulcer. Release tenderness was elicited from the epigastric and right hypochondriac regions. The heart was enlarged. The radial pulses and blood pressures were different on both sides of the body. The patient died the next day.

At necropsy the cause of death was seen to be rupture of the aorta into the pericardial sac, with hemopericardium and tamponade. A partial heart block which had been observed was explained by blood seeping into the auricular septum and across the A-V bundle, and the low abdominal pain by extension of the dissection to the fourth lumbar vertebra. The severe epigastric pain was caused by hemorrhage around and in the pancreas.

The manifestations of dissecting aneurysm of the aorta are protean. The pain with its type, mode of onset, and distribution, is of paramount importance in diagnosis. It is usually very severe, and extremely sudden. As a rule it is felt in the midthorax, front or back, and is usually descending. It may be felt in other regions and may radiate into the legs as far down as the toes, but radiation into the arms is unusual. Sweating, faintness, shock, and collapse are frequent. Dyspnea may be severe. Another group of symptoms results from dissection along the peripheral vessels. Involvement of the cerebral arteries can cause a whole gamut of symptoms from headache to coma. A third group of symptoms results from rupture of the aneurysm inside the chest and from the pressure effects produced. There are also symptomless cases.

A new sign was found in the present case. This was a unilateral reduplicated beat of the carotid artery. It may have been caused by the difference of the rate of propagation of the pulse wave through the lumen of the artery and through its dissected coats where the blood was partly clotted. Since no other pathology produced this sign, its pathognomonic significance is at once appreciated. Other known signs include: (1) bruit and thrill over the femoral artery; (2) rapidly shifting area of pulsation in the interscapular area, over which the aortic sound is

accentuated. This is associated with a rapid change in the radiologic appearance of the aortic shadow. Delay in the conduction of pulse beats is also significant.—*Quarterly Review of Medicine.*

——

Oral emetine in the treatment of intestinal amebiasis.—Bliss C. Shrapnel, M.D.

Twenty-five adults and 5 children with intestinal amebiasis were treated with emetine hydrochloride in enteric-sealed tablets, administered orally. The excellent results obtained in this study indicate that oral therapy provides a concentration of emetine in the intestinal tract which closely approaches the amebicidal concentration necessary to eradicate the parasite, without producing toxic side effects.

It has long been known that emetine is a much more effective amebicidal agent than any of the newer drugs on which *in vitro* studies have been carried out. Since emetine has a powerful, direct, amebicidal action, a property demonstrated in *in vitro* studies, oral therapy should eradicate the parasite. However, its concomitant powerful emetic action, resulting in severe salivation, nausea, and vomiting, has prevented administration of sufficient amounts to prove effective parasitologically. A few attempts had been made to provide protective coatings such as keratin or salol, or to combine the salt with other drugs in the form of emetine bismuth iodide, or emetine antimony iodide, in order to lessen the emetine effect. These results have, on the whole, not been successful. Emetine subcutaneously therefore remained the drug of choice in the management of extra-intestinal amebiasis.

The drug used in this study was emetine hydrochloride, prepared by Eli Lilly Company, and consisted of "enseals," or enteric-sealed tablets, to be administered orally. Each tablet contained one-third grain of alkaloid, and was designed to release its contents into the lower bowel approximately 3 to 4 hours after ingestion, thus avoiding the emetic effect of its presence in the stomach, and upper intestinal tract. Little is known of the amount of absorption of emetine that can occur from the large bowel, but from the results of this study it is believed to be minimal.

A standardized dosage schedule was used throughout, as follows:

Children: One tablet (1/3 gr.) of emetine hydrochloride, orally, three times a day for 12 days. Total: 12 gr. in 12 days.

Adults: Two tablets (2/3 gr.) of emetine hydrochloride, orally, three times a day for 12 days. Total: 2 gr. in 12 days.

As the avoidance of the emetic effects depends entirely on the protective coating on the tablets, particular care was taken that no cracked, chipped, or disintegrated tablets were administered. The tablets are small enough to be swallowed whole by small children.

It was presupposed that some tablets would be passed through the entire intestinal tract without liberating their contents, especially in cases of acute dysentery. This was found to be true in two cases in which tablets were seen in the rectal lumen during a proctoscopic examination. The standard dosage was maintained throughout, however, as in ordinary treatment it would be impractical to determine exactly how many tablets had dissolved, of the total given.

All patients were observed daily on ward rounds and questioned closely as to symptoms of abdominal cramps, diarrhea, nausea or vomiting, insomnia, joint pains, malaise. Insofar as practicable the following routine was established:

(1) Daily microscopic examinations of stools for amebae. Specimens of all stools passed by each case were examined daily by the author before, during, and for a few days following, the course of treatment. Most cases harbored other intestinal parasites, notably helminths, and were given vermifuges and saline purges before and following the emetine. These stool specimens were also carefully examined for amebae.

(2) Daily cultures of stools for micro-organisms.

(3) Daily urinalysis.

(4) Blood pressure readings.

(5) Complete blood count every third day.

(6) Electrocardiogram every three days, except on infants.

(7) Proctoscopic examinations before and after treatment.

(8) Daily count of number of stools passed.

All cases were allowed out of bed as much as desired. No restrictions as to diet were followed, the patients usually taking the full diet.

There were five cases of intestinal amebiasis in children of ages ranging from 1-5/12 to 9 years. There were two cases of acute dysentery, two of chronic dysentery, and one "carrier" state. All harbored other intestinal parasites, notably helminths and presented the picture of malnourishment, underdevelopment and secondary anemia. They were given the usual vermifuges and purges as well as oral emetine hydrochloride. None of these children manifested vomiting for toxic manifestations during the administration of oral emetine. All showed a steady clinical improvement. The amebae disappeared from the stools between the third and fifth days of treatment, appetites improved, and the frequency of bowel movements diminished. A moderate diarrhea persisted in one case. He was given a course of sulfaguanidine as pus cells were noted in the stool specimens. The diarrhea promptly subsided and the pus cells disappeared.

Twenty-five adults, of ages from 18 to 66 years, were treated with a standardized dosage of two tablets of emetine hydrochloride, orally, three times a day for 12 days, a total of 24 grains in 12 days. This series included 6 cases of acute dysentery, 13 of chronic dysentery, and 6 of the "carrier" state.

There were no serious toxic symptoms manifested in this group. No vomiting occurred in any case, care being taken to administer only complete, unbroken tablets. The diarrhea of the acute cases subsided rapidly, the number of stools reducing to 2 or 3 daily; then to none, or one, daily, by the end of the course of treatment. The abdominal cramps and tenesmus responded quickly, usually by the second or third day. Some of the chronic and "carrier" cases, who had not had diarrhea, began to have two or three soft stools daily during the treatment, but this was not accompanied by cramps or tenesmus. This was not considered a toxic effect. The trophozoites of *E. histolytica* could not be found in stool examinations, on the average, by the third day of treatment, but cyst forms could be found as late as the sixth day.

Twenty-four of the 30 cases treated with oral emetine were re-admitted as hospital patients for recheck studies, from 2 to 9 months after receiving the drug. Clinical cure was obtained in all cases but parasitologic cure failed in one adult, who was found to harbor *E. hystolytica* trophozoites, seven months after receiving the drug.

The present series of cases is small, but some conclusions can be drawn. Oral emetine, in the form used in this study, is a drug which is easy to administer, does not produce toxic symptoms in the dosage as reported herein, and provides effective results.

That the drug reaches the amebae in the ulcerated areas of the intestine can be demonstrated by following with the proctoscope the progress of a patient with rectal ulcerations who is receiving the drug. A rapid decrease in the size of the ulcers, with healing, is evident. The presence of secondary infection of the amebic ulcerations will, however, prevent complete healing, although the amebae will disappear from mucosal scrapings, and the stools. The two cases in this series, whose rectal lesions failed to heal completely with oral emetine treatment, responded rapidly to sulfaguanidine and sulfadiazine, indicating a superimposed secondary infection of the amebic lesions.

The low or absent toxic effect of oral emetine in the dosage as used in these cases is aptly demonstrated by the absence of toxic symptoms in the five children treated with oral emetine. The subcutaneous administration of one grain of emetine hydrochloride daily for 12 days, as was given orally, to these five children would have been dangerous, if not lethal. The adult dosage, although comparatively not as large as given to children, was twice the maximum recommended for subcutaneous administration, and failed to produce toxic effects.

It is thus possible, with the drug as used in this study, to administer orally, and without producing toxic effects, at least double the amount of emetine hydrochloride as could be done safely by subcutaneous administration.

The ability to administer a larger amount of emetine hydrochloride provides a method of maintaining a higher concentration of the drug in the intestinal tract than was formerly possible by the subcutaneous route.

The results of this study indicate that the dosage used closely approaches the amebicidal concentration necessary to eradicate the parasite from the intestinal tract.

No difficulty was found in administering some other drugs to patients receiving emetine orally. Atabrine, hexylresorcinol crystoids, magnesium sulfate solution, ferric ammonium citrate solution, sulfaguanidine, sulfadiazine, and penicillin have all been given to patients in this series, without interference or toxicity.—*Digest of Treatment.*

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Peptic ulcer in the aged.—Everett D. Keifer and David McC. McKell, Jr., Lahey Clinic, Boston, Mass. *J.A.M.A.* 133:1055-60, Apr. 12, 1947.

One hundred and fifty-two cases of peptic ulcer occurring in patients who presented themselves for examination after the age of 65 are analyzed. There were 112 duodenal, 36 gastric and 4 postoperative jejunal ulcers. Forty-four per cent of the series had the onset of their first symptom after the age of 60, and 15 per cent after the age of 70. Diagnosis from history and physical examination presented some difficulty. Only 45 per cent gave a history that could be considered characteristic of peptic ulcer. Nine per cent of the active duodenal ulcers had tenderness in the right upper quadrant suggestive of cholecystic disease. Twenty per cent of the series gave a history and had physical findings entirely consistent with malignant disease of the stomach with pain, vomiting, anorexia and pronounced weight loss. Treatment does not differ greatly from that in younger age groups. Frequent small feedings, hourly, neutralization and a bland diet are the basic points. Attention should be placed upon a high protein intake and upon individual variation of the carbohydrate fraction to maintain normal body weight without inducing obesity. The diet must be made palatable to secure maximum cooperation in a group of patients whose habits have been fixed over a period of many years. The treatment of the obstructing ulcer is not modified by the age of the patient. Chronic obstruction in duodenal ulcer was met in 33 out of 112 cases. If there is no prompt response to a medical regimen, including rest, surgical drainage must be seriously considered. Seventeen of the 33 obstructions were treated surgically with 1 postoperative death and with 1 subsequent jejunal ulcer. Sixteen patients were treated

medically with satisfactory results in all but one. Nine patients had subtotal gastrectomies, usually for suspected malignancy, with 1 death. Gross hemorrhage presents the most serious threat to life in this age group. Of 152 patients presented, 48 had a history of hemorrhage, 17 of whom had had more than 1 episode. In 4 patients the eventual cause of death was bleeding. The authors believe in immediate immobility, starvation and sedation for twenty-four to forty-eight hours. Recurrent hemorrhage under this program is considered indication for immediate operation. In the 45 patients treated immediately after gross hemorrhage there were 6 in whom it was particularly severe and accompanied by shock. There were no deaths in these cases. The authors point out, however, that they do not see the patient with an exsanguinating hemorrhage who is admitted to his local hospital, being too ill to be transported to the Clinic. Esophageal ulcers were found as a complication of long-standing duodenal ulcers in 3 cases. They responded to routine medical management plus esophageal dilation for cicatricial contraction when indicated. The prognosis in all cases except those complicated by severe hemorrhage is approximately the same as that in younger age groups. In the final follow-up 107 patients had obtained relief, 28 were improved but had had recurrences, 4 were unimproved and 8 had died of their ulcer. Of the deaths, 4 were from hemorrhage, one from perforation, 2 postoperatively and one at home of uncertain cause, probably related to the ulcer. Sixteen per cent of the patients with duodenal ulcers and 29 per cent of those with gastric ulcers were operated upon. The high percentage in the gastric cases was due to the ever present question of malignancy. In general, any gastric crater which does not disappear completely in two or three weeks of strict medical management, as determined by roentgen ray and gastroscope, is presumed to be malignant. In those older patients in whom the surgical indication is a question of cancer, subtotal gastrectomy must usually be performed. In those who are substandard risks, who have a comparatively low gastric acidity and in whom the indication for operation is pyloric obstruction, the surgeon can usually be contented with a gastroenterostomy. Careful preoperative care and preparation, expert administration of anesthesia and close postoperative observation are essential to reduction of mortality. If attention is paid to these factors, these elderly patients withstand operation surprisingly well. Coincidental disease did not influence the management of peptic ulcer and there was no parallel between its presence and the ultimate success or failure of treatment. Proved cholecystic disease was found in 11 cases which would suggest something more than coincidence. Diaphragmatic hernia was found in 16 cases, but in no case was there an associated esophageal or hiatus ulceration.—*Quarterly Review of Medicine.*

BCG vaccination.—Rosenthal, Leslie, and Lœwinsohn report on a large strictly controlled study of BCG vaccination in all age groups. The groups studied were: (1) newborn infants delivered at the Cook County Hospital of Chicago, (2) infants born of tuberculous parents anywhere in Chicago, (3) student nurses at the Cook County Hospital, (4) medical students at the University of Illinois, (5) children in a federal housing project, and (6) inmates of a mental institution.

The cultures used were transfers from the original culture at the Pasteur Institute in Paris The oral method of administration originally advocated by Calmette was largely replaced by the intracutaneous route suggested by Wallgren. It was noted that the former method yielded a small percentage of reactors to tuberculin, while the latter yielded a high percentage. However, the local sequelæ following intracutaneous methods were so high that a method of sacrification of multiple punctures was described by Rosenthal. In thousands of vaccinations by this method complications were practically non-existent. The method is described as follows:

A drop of vaccine is placed on the outer aspect of the alcohol-cleaned arm. A sewing type needle, similar to the one used for vaccinia, is held between thumb and the index finger about 1·5 cm. from the point. The thumb and needle should form a continuous line. With the shaft of the needle held tangentially to the skin, the vaccine is spread in linear fashion for a distance of of 2 5 cm. By a downward pressure, exerted to a large extent by the thumb, the skin is pierced with the needle point through the vaccine.

Following this downstroke, which engages the point of the needle into the skin, an upward movement is exercised without disengaging the needle. The point of the needle remains buried in the skin on the upstroke. This precaution makes the method foolproof The punctures are placed about 2 to 4 mm. apart, and ten punctures are made in a line. The vaccine is spread to the second line parallel to the first and 4 to 6 mm. away. Thus three lines of ten punctures each are made in an area of approximately 2.5 by 1 5 cm. The vaccine is allowed to dry on the arm; no blotting or covering with dressings is practised. Wetting of the arm should be avoided for twenty-four hours.

The authors concluded that the application of BCG vaccination to all age groups is a safe and effective procedure. In 2,831 newborn infants living in the poorest districts of Chicago but not in household contact with tuberculosis, there were 11 cases of tuberculosis in the vaccinated against 39 in the controls. The rate per thousand person-years was 3·31 times as great in the controls as in the vaccinated. There was one death from tuberculosis in the vaccinated against seven in the controls, or a difference in the rates of 6·8 times. In 1,159

siblings the tuberculosis rate per thousand person-years was 5·29 times as great in the controls as in the vaccinated.

In a preliminary report on children in a federal housing project, in nursing and medical students and in patients of all ages in a mental institution, there were no cases of pulmonary tuberculosis in the vaccinated group followed for three to seven years. The expected tuberculosis rate was present in the control groups. The use of the multiple puncture method practically eliminated all complications and this method gave prompt conversion (within one month) to tuberculin reaction in all cases. A positive tuberculin reaction following a single vaccination was present in 92·6 percent after three and one-half to four years and 79·85 per cent after six to six and one-half years in children vaccinated at birth.

(Rosenthal, Sol R., Chicago, Ill., Leslie, Eleanor I., and Loewinsohn, Erhard: *The Journal A.M.A.*, 136: 73-79 January 1948). —*Medical News Letter.*

SURGERY

Late effects of total gastrectomy in man.—MacDonald and his associates say that studies on patients who have survived total gastrectomy for three years or more are few, and contradictory results are reported. For this reason and since total gastrectomy is being practised with increasing frequency, they have studied intestinal motor function, intestinal absorption, pancreatic function and the blood picture in three patients who have survived total gastrectomy for three, five and ten years, respectively.

All patients have a normal desire for food and develop hunger. The patient in Case 1 takes three meals a day and only occasionally eats between meals; the meals are of nearly normal size. Another patient (Case 2) has persisted in taking in-between-feedings and a bed-time snack. The third patient has to eat irregularly because of his work, but four times a day, on the average, he takes meals about two-thirds the size of those consumed before his illness. All three patients are on an unrestricted, mixed diet, but take care that the food is well cut and well chewed. Occasionally, they experience borborygmi and mild upper abdominal cramps after eating, and, too rapid eating may produce an epigastric sensation of fullness. None of these patients have dysphagia or symptoms suggesting the "dumping" syndrome. The weight, although it increased after the operation, has never regained the levels existing before illness.

Fluoroscopic and radiologic examination revealed a normal esophagus and a patent, well functioning esophagejejunal anastomosis. In cases 1 and 2 the jejunal segment at the anastomosis was dilated, with no mucosal markings except a few thickened valvulæ conniventes. The barium meal tended to puddle in these jejunal reservoirs. In Case 3 jejunal dilatation was not seen. The motor pattern of the lower jejunum and ileum of all three patients manifested minimal to moderate abnormalities of the type seen in the "deficiency pattern" of Golden.

Kymographic records of small-intestine motility were obtained and corresponded well with the roentgenologic findings. Studies on the fat absorption indicated that fat absorption is only mildly impaired in patients who have survived total gastrectomy for two or more years.

Judging from the prothrombin times, the absorption of fat-soluble vitamin K is adequate. The normal serum levels of calcium and phosphorus also indicate that at least some vitamin D is being absorbed. Roentgenograms of the spine and pelvis revealed normal bone studies in two cases. In Case 1 considerable osteoporosis was noted, but no more than was evident before operation.

Although it has been postulated that the secretion of pancreatic enzymes is greatly reduced after removal of the stomach, pancreatic-enzyme studies in these cases, however, yielded essentially normal figures except in Case 2, in which total gastrectomy, splenectomy and partial pancreatectomy had been performed. He experienced difficulty in maintaining weight. Dilatation of the jejunum was present. Pancreatic enzymes were deficient, and the vitamin A tolerance curve flat. The glucose tolerance curve showed a hyperglycemia, which was sustained.

In the other patients, the vitamin A tolerance curves showed an apparently delayed but otherwise normal absorption of the vitamin. Glucose-tolerance tests disclosed an early and marked, but transient, hyperglycemia.

Blood studies demonstrated that two of the three patients developed a macrocytic, hyperchromic anemia two and five years respectively after operation. The other had received prophylactic liver treatment. A review of the literature revealed a high incidence of macrocytic, hyperchromic anemia in patients surviving total gastrectomy for three or more years. (MacDonald, R. M., Massachusetts Memorial Hospital, Boston, Mass.: Ingelfinger, F.J. and Belding, Helen W.: *New England Journal of Medicine*, 237:887-895 December, 1947. The authors are connected with the Evans Memorial, Massachusetts Memorial Hospitals and the Department of Medicine, Boston University School of Medicine.)

—*Surgical News Letter.*

On precursors of gastric carcinoma.—Rudolf Schindler, College of Medical Evangelists, Los Angelis, Calif. *Geriatrics* 2:75-87, March-April 1947.

Three diseases have been considered to be precursors of gastric carcinoma.

Benign gastric ulcer—Some authors thought that 60 per cent of all benign ulcers would become malignant, others that no benign ulcer would degenerate. Clinical observation revealed that occasionally a cancer may develop in an ulcer bearing stomach (although not so often as should be expected), but that a benign ulcer would not become malignant. Benign ulcer and carcinomatous ulcer are two different diseases. The aging ulcer patient is not threatened by gastric carcinoma more than other people, perhaps even less.

Benign gastric adenoma—Benign adenomas (polyps) are found in 2 to 4 per cent of all gastroscoped patients. Grier Miller has shown they may develop into carcinoma. They are so small that they may not be felt at laparotomy and may not be seen after the stomach has been opened. The large resection would be necessary for their removal. However, malignant degeneration is a rare event; therefore the frequent small polyps would be watched carefully. Very large adenomas should be extirpated as a matter of routine. In extensive polyposis of the antrum resection should be done. If the entire stomach is involved, careful observation by roentgen ray and gastroscopy is indicated.

Chronic atrophic gastritis—Microscopically atrophic gastritis is characterized by compression of the neck of the gastric glands by exudate, by destruction of the gastric glands and proliferation of the pits. At gastroscopy greenish gray discoloration with blue blood vessels is seen. Clinically atrophic gastritis may be either symptomless or produce attacks of epigastric pain, pressure, fullness, nausea, vomiting, weakness, paresthesias and sore tongue. In every decade of life the same number of cases originate so that by addition the highest incidence is in the cancer age. It seems that there is a true etiologic relationship, not only coincidence. The quantitative expanse of the atrophy is much greater in gastric carcinoma and in pernicious anemia than in other patients of the same age group. Pernicious anemia has been demonstrated to have a very high morbidity of gastric carcinoma. In atrophic gastritis with and without pernicious anemia benign adenomas are much more frequent than in other patients Ewing stated that adenoma is prone to develop in any organ with parenchymatous atrophy. Statistics show that patients with gastritis develop carcinoma three times more frequently than should be expected from the law of averages. Gastric carcinoma is often preceded by a long case history of abdominal distress which must have been due to chronic gastritis. Therefore it is likely that chronic atrophic gastritis is a true precursor of gastric carcinoma. Systematic observation by numerous roentgen ray and gastroscope examinations enabled Rigler and Kaplan to discover very small symptomless gastric carcinomas in pernicious anemia. The same should be accomplished in simple atrophic gastritis. Gastroscopy alone can discover this disease. In every case of vague, mild and transient epigastric distress gastroscopy should be done. If atrophic gastritis is found it should be followed up by frequent (4 times yearly) roentgen ray examinations with relief technic and spot films. Then very small and symptomless gastric carcinomas may be delivered.

—*Quarterly Review of Medicine.*

The treatment of burns.—Hardee Bethea, M.D.

A wide variety of therapeutic agents has been recommended during the past 15 years for burns including greases, both medicated and unmedicated, escharotics, topical drugs, and pressure dressings with or without medicinal agents Departing from the regime placing greatest emphasis on the care of the wound, the present day trend is toward the establishment of a plan of therapy based on the known physiological and pathological changes that occur not only at the burn site but throughout the body.

Two main concepts must be considered in the treatment of severe burns: (1) that the patient has undergone, or will undergo pro found physiological changes which, unless properly cared for, can cause death; (2) that immediate and proper care of the local wound can mean the difference between rapid recovery with minimal scarring, or prolonged debilitating illness with eventual disability and disfiguration.

General care of the patient:—Measures for the relief of shock should be initiated as soon as possible. Routine administration of large doses of morphine is not advocated, but it may be given in ¼ grain doses to adults who are extensively burned or in a severe state of shock. More rapid results without additional hazard may be obtained by the combined administration of ¼ grain subcutaneously and 1/6 grain intravenously.

There is an immediate loss of circulating fluids into the tissue spaces, with resulting hemoconcentration. Early introduction of fluids intravenously is therefore very important. Plasma is by far the most effective agent for this purpose during the early period of treatment, but should be followed by whole blood transfusions as soon as the hemoconcentration is corrected. It is desirable that a specimen of blood be collected at the time of the initial venipuncture. The hematocrit reading and red blood cell counts from that specimen are of immeasurable assistance in determining the degree of generalized reaction to the burn, and the amount of plasma to be given. Plasma should be given in 500 cc units. Using frequent hematocrit readings as an index, the hematocrit should be reduced to its normal level of 45 with as little delay as possible. When that level is reached, it is preferable to substitute whole blood for plasma to prevent, or lessen the degree of secondary anemia which often complicates burns.

In order to maintain normal body temperature, adequate covering should be provided; that portion which comes in contact with the patient's body should be sterile. Burned areas are often unnecessarily infected by the hurried application of the nearest available covering without thought of the contamination that may be effected.

Penicillin should serve as an important preventive measure against infection if administered early. The dosage recommended for an adult is 35,000 units every three hours. The use of streptomycin as a chemotherapeutic agent has not been fully determined but recent reports indicate that it will prove valuable in the treatment of infections accompanying burns.

As an initial measure the routine administration of a double dose of mixed serum (gas gangrene and tetanus antitoxin) is a well-founded practice and worthy of being carried out.

Local care of the wound.—It must be remembered that any burned area contains millions of damaged cells which can recover and contribute to the healing process if given the proper care. The use of harsh techniques such as scrubbing, the application of caustic or escharotic chemicals, or the occurrence of gross contamination due to negligence on the part of attending personnel, will cause the destruction of many of these cells and the resultant prolongation of the healing process. The following technique has been found to be the most satisfactory: The patient is placed in an operating room and attendants are scrubbed, masked and gowned as for other serious operations. Sterile drapes are placed about the burned area and the burn *gently* bathed with a slimy solution of bland white soap and sterile water applied with pads of absorbent cotton. The cleansing process is carried out with a continuous rotary motion, caution being taken to treat the wound gently. After ten minutes of cleansing by this method, the wound is flushed with sterile water, and the process repeated after drapes, gowns and gloves have been changed. Blebs are then opened, all shreds of devitalized skin are removed, and a pressure dressing is applied. In cases in which the burn is extensive or the general condition of the patient so grave that the above procedure could not be accomplished without endangering life, the simple application of the pressure dressing without the cleansing process is advocated.

A single layer of fine mesh rayon (120 x 108) has proven the choice basic layer of the dressing. This material is open enough to permit desired drainage but fine enough to prevent the capillary infiltration into the dressing with resultant bleeding at the time of changing dressings. A one-inch layer of coarse gauze is placed over the rayon and serves as a receptacle for exudate that passes through the rayon. This is covered with a single layer of sterile cellophane which prevents further contamination of the wound by capillary attraction through the damp gauze. Pressure is applied with an ACE elastic bandage. It is believed that this type bandage is superior to waste because it provides a more uniform pressure and is easily washed and autoclaved for reuse.

As a general rule, if infection is *not* present, the original dressing is allowed to remain for 21 days, at the end of which time sloughing is usually complete and the wound ready for skin grafting if necessary.

In the treatment of *infected burns*, the above routine is not entirely adhered to. The rayon and coarse gauze are first saturated with sterile 2 per cent acetic acid which has been buffered to a pH of 4 with sodium acetate. The sterile cellophane and ACE bandage are placed over this as when treating clean burns. The dressings are changed every 24 to 48 hours, depending on the degree of infection.—*Bulletin of Tulane Medical Faculty.*

The obstructive prostate.—Frank Hinman, M.D., San Francisco.

The obstructive prostate is of several varieties. Benign enlargements and median bar formations are almost always obstructive; inflammations, cysts, prostatic calculi, leiomyomas and fibromyomas occasionally, but cancer infrequently, unless associated with one or more of the preceding conditions. Benign enlargement and carcinoma are common affections, each with a high rate of disability and death. Since obstructive conditions are so frequently associated with carcinoma and time will not permit full presentation of all of them, the discussion will be limited to benign enlargement and carcinoma.

Benign enlargement of the prostate is not a hypertrophy or merely a hyperplasia of the prostatic elements, the terms commonly used. The majority of authorities believe that it is a new growth of fibrous, muscular and glandular tissues, serving no physiologic purpose, a fibromyoadenoma. No one knows why the enlargement begins, although an endocrine disturbance is suspected.

Cancer of the prostate, like enlargement, occurs in later life and the two often occur together but are unrelated otherwise. Unlike enlargement, which involves periurethral glands, cancer arises from any other part of the parenchyma of the true prostate, usually in the periphery. It is this external position which makes the early recognition of its presence possible. Complete removal and cure of the lesion while it is limited within the prostate is possible and has been accomplished repeatedly, even when perineural lymphatics in the capsule have been invaded.

When the facts about occult carcinoma and metastasis are explored, it seems probable that the disease may exist for many.

years without causing symptoms or spreading beyond its place of origin. This delay prolongs the period for making an early diagnosis and should incite an extra effort to improve one's methods of diagnosis so that full advantage of it be taken, provided of course that early diagnosis and radical surgical methods will cure the disease. Unfortunately only about 5 in every 100 with cancer of the prostate are seen early enough to justify radical surgical procedures. It is apparent that many physicians, suspecting cancer or even being sure of it, keep silent, because they know of nothing better, or refer the patient to a member of that large group of urologists who neither advocate nor perform radical surgical operations.

For the early recognition of those primary lesions which cannot be palpated per rectum, two disciplines have been developed through experience. In the past ten years my own records show 43 cases which were unsuspected on rectal palpation before operative intervention. They were discovered by microscopic study of material removed at transurethral resection or of the specimen after perineal or suprapubic enucleation for enlargement. Resectionists, therefore, should put aside for particular miscroscopic search the material removed from the deeper peripheral portions of the enlargement. In addition every suprapubic and perineal prostatectomy should be followed by a careful search of the surface of the specimen and of the cavity left after enucleation, and a biopsy with frozen section of any areas at all suggestive should be made.

How effective is endocrine therapy? The real benefit that most patients with advanced cancer of the prostate derive from hormonal therapy must not be minimized. The relief from pain, the improvement in urination with recession of the local growth and the gain in general health are often remarkable. The indications are, however, that in a five year period almost as many will die as in the untreated series. The immediate benefits are not permanent, and the cancer may show an increase of virulence later. Most urologists, therefore, hesitate to use this method of treatment of early cancer—*Digest of Treatment.*

Bladder management following spinal injury —Veseen and his associates assert that genito-urinary complications are the chief causes of the high morbidity that follows spinal cord injury. Confusion and disagreement exist among urologists regarding the the management of "cord bladder." The authors present a resume as to how such problems were handled with gratifying results.

The anatomy and physiology of the bladder emptying mechanism are not completely understood. Theories rise and fall, but from these certain important factors have been established. The authors discuss the neural anatomy of the bladder and stress that the detrusor is the chief muscle involved in micturition. Impulses acting through parasympathetic fibers carried in the second, third and fourth sacral nerves and spinal centers in the conus medullaris provide the micturition reflex which is inhibited centrally.

The ultimate aim of the urologist is to assist nature in producing the return of normal bladder function or the closest alternative, the automatic bladder.

As can be seen from a review of the neural anatomy of the bladder, the level of the spinal injury may be used as a guide in prognosticating the final result. Generally, those below first lumbar, involving the bladder nerves, hold the poorest urologic prognosis.

The first 48 hours following spinal injury is considered a crucial period by the urologist. When the case is seen immediately, the bladder is permitted to become distended. Catheterization is delayed as long as possible. The normal bladder musculature will not rupture spontaneously from such dilatation. Paradoxical incontinence will take care of this.

First, the patient is instructed to attempt to empty the bladder at periodic intervals by the clock. In the very beginning this interval may be as short as every 30 minutes. Gradually, it is increased until the interim between voidings is in the neighbourhood of two to three hours. The accessory muscles of micturition, namely the recti, obliques, and transversi of the abdomen and the diaphragm are utilized, if possible. In addition, suprapubic pressure exerted with the closed fist is advised if the upper extremities are not involved in the injury. If such is the case, an attendant accomplishes the Crede maneuver. A residual urine will be present and will act as a culture medium for pathogenic organisms.

Antibiotic and chemical agents are administered from the moment the patient is seen. Penicillin is given in large doses, 40,000 units and up, every three hours. Streptomycin is reserved until complications develop because organisms are capable of developing considerable resistance to it. Infected cord bladders head the list of urological disorders for which this particular material is indicated. When administered, 0·4 gram is given intramuscularly every six hours. The sulfa drugs are administered in an acid medium and are effective. The dosage rarely exceeds 4 Gm in 24 hours. Methenamine, mandelic acid, and mandelamine are also available.

Acidification of the urine is carried out with one of the following drugs: Ammonium chloride, ammonium nitrate, ammonium mandelate, and sodium acid phosphate. The acid-ash or ketogenic diet is utilized.

The acidification of the urine serves two functions. It produces an undesirable culture medium for the growth of E. coli, the most troublesome pathogen encountered, and assists in maintaining carbonates and phosphates in solution, staving off the development of urinary calculi, resulting from the mobilization of the skeletal salts during a protracted period of bed rest. Urine acidity is checked daily. The carbon dioxide combining power is checked periodically. The production of acidosis may be a serious problem in itself.

Acetyl beta-methylcholine may be used initially because of its parasympathimometio action. Little may be expected from its use, but occasionally it will assist detrusor contractions. By its proper use the postoperative bladder atony may be completely controlled, obviating the need for catheterization. Oral doses up to 300 milligrams every 30 to six hours or parenteral doses up to 150 milligrams are employed. Atropine sulfate should be readily available to control and abolish its actions if the need arises.

During the first five days automaticity may develop. This is illustrated by one of the cases under the management of the authors. Such is not always the happy state of affairs. Catheterization may finally have to be done. The rapidity of decompression of the bladder is still controversial. No harm is done in completely emptying the bladder in acute distention.

Slow decompression is advised if the distension is of long standing. If, after the second catheterization, more are needed to promote drainage an indwelling urethral catheter should be placed. Proper catheter care is required (urine acidification, frequent irrigations with a buffered citrate solution) and frequent changes with the strictest of periodic drainage is used. At each catheter change the development of automaticity is checked. By gradually increasing the pressure as tonicity returns, automaticity may develop. Finally, after a lapse of several months or the development of complications (infection, sepsis, reflux, ureteral flow, hydro-and/or pyonephrosis) a temporary suprapubic cystotomy may be done. The suprapubic tube must be handled with the same care as an urethral catheter.

Transurethral reaction of small amount of tissue from the bladder neck of cord bladders has been pouplarized during the war years. Removal of the "hypertrophic" neck is supposed to promote urine drainage, do away with straining and residual urine, yet leaving the patient continent with good control. The patients under the care of the authors who have had transurethral resections in other hospitals were incontinent, necessitating a penis clamp. It is felt that the transurethral resection should be done late in the management of these cases.

(Veseen, L. L. Chicago, Ill., Miller, W. W. Jr. and Paynter, G.C.; *United States Naval Med. Bulletin*, 47:945-953 November-December, 1947. The authors are connected with Loyola University School of Medicine, Northwestern University Medical School and Passavant Memorial Hospital.

—*Surgical News Letter.*

Treatment of acute peripheral arterial occlusion (embolism and thrombosis).

1. Relieve pain.
   (*a*) Opiates as needed.
2. Avoid measures which do harm, such as
   (*a*) Application of heat.
   (*b*) Elevation of the extremity.
3. Administer anticoagulant agents
   (*a*) Heparin and dicumarol.
4. Relieve arterial spasm
   (*a*) Heat
      (i) Warm environment; room temperature about 90°F.
      (ii) Apply warm packs to other than involved extremities.
   (*b*) Alcohol by mouth (liberally!); Papaverine.
   (*c*) Anesthetization of appropriate sympathetic nerves.
      (i) Spinal or caudal anæsthesia.
      (ii) Paravertebral anesthetization of sympathetic nerves.
   (*d*) Oscillating bed if available.
5. Embolectomy, provided medical treatment is not effective in greatly improving the circulation within 6 12 hours and provided hopelessness of saving the limb is not already apparent.

—Edgar V. Allen, M.D., *The Journal of the American Medical Association*, September 6, 135: 15-17, 1947.—*Digest of Treatment.*

OBSTETRICS and GYNÆCOLOGY

Prevention of repeated miscarriage.—Lawrence Kurzrok, M.D., and Charles Bimberg, M.D.

We are reporting a series of 27 cases of repeated miscarriage treated by the administration of anterior pituitary-like hormone (APL), corpus luteum hormone (CLH) and estrogen. These women had miscarried from 1 to 3 times previously.

Treatment in our cases was begun as soon as a diagnosis of pregnancy was established or suspected, and consisted in the following:

Anterior pituitary-like hormone, 1,000 to 2,000 units 3 times a week until 4½ months' gestation, then 1,000 units 2 times a week till 8 months.

Corpus luteum hormone 5 mg. 3 times a week until 4½ months' gestation, then twice a week until 8 months.

Estrogen—alpha-estradiol ½ to 1 mg. daily, depending upon the extent of uterine and genital hypoplasia present. In a few cases, ethinyl-estradiol 0·05 mg. 3 times a day was given instead of alpha-estradiol with no apparent difference in effect.

We were extremely fortunate in our results. There were no interruptions of pregnancy in the 27 cases. Miscarriage did not take place, though there were cases which bled even during treatment. We do not believe the treatment outlined is a panacea for all miscarriages, nor does it preclude further improvements and changes as our conceptions, knowledge and armamentarium improve and grow. The babies delivered were normal with the exception of one, which was a Mongol.

Labor did not set in earlier than 10 days after discontinuance of the injections. In most cases, there was a lapse of approximately 3 weeks. In several other cases in which CLH had been given without APL, bleeding occurred about 3 weeks after stopping of the therapy, at 4, 4½, and 6 months, respectively.

The theory underlying our therapeutic program is as follows:

We incline to the belief that many miscarriages are due to faulty implantation and believe that the invasiveness of the trophoblastic layer is dependent upon the amount of stimulation that it receives from the anterior pituitary and the placenta—in other words the depth and strength of attachment of the placenta depends upon the amount of prolan produced, either by the anterior pituitary or by the placenta. Many times we have performed Aschheim Zondek tests on patients presumably pregnant in whom a vaginal examination failed to establish such a diagnosis. They were approximately 6 weeks from the last menstrual period and we found only a moderate follicular stimulation or even a negative response, only to find two weeks later on repeating the test a full positive test for pregnancy. This absence of a positive pregnancy test at a time when one would normally expect a full positive response is undoubtedly due to lack of prolan production, and we believe it most likely to occur in those women who have a considerable genital hypoplasia and in whom the uterus barely reaches a normal size at 6 weeks' gestation. It is not unusual to find in this group of hypoplasias some defect in the production of a good progestational phase premenstrually, although a poor luteal phase is not ruled out by the absence of genital hypoplasia. It is generally agreed that the production of prolan is highest in the first trimester of pregnancy with a gradual decrease thereafter.

There is some evidence to show that the production of estrogen and progesterone lies in the syncytial cells. We also know that a large percentage of miscarriages occur during the so-called "danger period" around 3 to 3½ months of pregnancy, at a time when the corpus luteum of pregnancy is degenerating and the placenta takes over its function. It is very reasonable then to believe that insecure implantation of the placenta would result in insufficient production of the hormones necessary to the life of the pregnancy and bleeding at the site of the poorest syncytial penetration, i.e., separation of the placenta.

It is our belief that Rh incompatibility does not produce miscarriage.

We have not had sufficient experience with vitamin E, except in threatened abortion. In such patients we were unable to obtain a salvage rate of any considerable proportions. In this series of cases no vitamin E was given to any patient.—*Digest of Treatment.*

DERMATOLOGY

A newer treatment of scabies.—Harry M. Robinson, Jr., M.D, and Harry M. Robinson, M.D. Forty-four cases of scabies have been treated with a tyrothricin-benzyl benzoate mixture. A satisfactory result was obtained in all but one case. This method of treatment can be recommended in the treatment of scabies complicated by secondary coccogenous infection in children or adults and obviates the necessity for using more than one method of treatment, or more than one preparation.

The following formula is the one used in the conduct of this study.

Tyrothricin	0.05%
Benzyl benzoate	30.0%
Benzocaine	3.0%
23 H. Alcohol (ethyl)	65.0%

Distilled water and flavoring agents q.s.

Each patient was furnished with a bottle containing 6 ounces of the benzyl benzoate-tyrothricin mixture and was instructed to use it in the following manner:

1. Open blisters and remove crusts with a needle.
2. Take a warm bath with copious amounts of soap and water.
3. Dab dry.
4. Rub the solution on lightly from neck to toes twice daily for the next two successive days.
5. After the second day take a bath as at first and then report to the doctor.
6. Scabies is a contagious disease and every member of the family that is infected should be treated.
7. All bedclothes, underwear, towels, etc., that come into contact with the infected skin should be sterilized by boiling.

A noteworthy result in all but one of the cases treated was the rapidity in which itching was controlled. Some of the patients with enough intelligence to evaluate their subjective symptoms reported that almost all the itching had subsided in 24 to 48 hours. The mothers of the children reported that the children slept well after the first 48 hours of treatment. The patients were observed every 48 hours for the presence of any characteristic lesions of scabies. No lesions were found after 4 days of treatment. The length of time necessary to heal all lesions completely varied with the severity of the case, but in no instance exceeded 14 days. The shortest time necessary for complete involution was 6 days.

There was one failure in this series, who, after 14 days of treatment still had symptoms, and it was necessary to change to a sulfur preparation for a satisfactory result.

No serious reactions were encountered in this series. Some of the patients complained of a temporary feeling of burning or tingling which immediately followed the application of the mixture but which quickly subsided. The mother of the 2-month-old child stated that the child cried after the treatment and that the skin became quite red. This was not observed when the child was examined; therefore the treatment was not changed and the child recovered from scabies in 6 days. It was necessary to discontinue the treatment in one case because of an untoward reaction.—*Digest of Treatment.*

Correspondence

Fate of Medical Men in Local Fund Service in the Province

To The Editors, THE ANTISEPTIC, Madras.

Sirs,

It is a well-known fact both to the Government and to the Medical Department that the Medical Service in District Boards is looked down, given less facilities and is paid a low salary even though the District Board doctors are on a par with Government doctors in qualification. They are compelled to work in the villages where they find less facilities, and are not given chances to work in Headquarters Hospitals, in special departments, such as Ophthalmic and Mental Hospitals and in jails. In villages, in general, the hospital attendance will be very poor when compared to towns and thereby the chances of coming in contact with the manifold diseases of medicine will be less. The most common diseases that are generally found and treated are Malaria, Scabies, Ringworm, Otitis, Conjunctivitis, Diarrhœa, Dysentery, Anæmia and a few deficiency diseases. Diseases which require efficiency and thought are rarely seen. So, the medical men in the District Board service are almost accustomed to work as routine machines rather than as scientific men. This machine work ultimately results in forgetting what he has learnt in his collegiate career. Unless this thing is immediately redressed by the Government by instituting proper methods, the launching of the health scheme which is under contemplation at present, I fear, will prove to be an inefficient scheme, for the good doctors that are manufactured in colleges will become useless by continuously working in poor villages only throughout their service.

Young doctors, who are energetic and are apt to work and learn, are thrust into villages permanently and shut out from the light of modern institutions in this District Board Service. Medical men in Government service have a turn to work both in villages and towns with fair chances of working in other specialist hospitals also. The Government have to presume that mere House Surgeonship is not enough to gain experience. It is after all very little, because of the short period, but at the same time the medical men may not like to work as House Surgeons for years together. This thing is compensated, as the Government medical men are being posted not only to headquarters hospitals but also to special department medical institutions. But, such chances are barred to the Local Fund Service. The District Board considers only medical relief work without relief to the medical men. This injustice is mainly due to the handing over of a part of the medical department to the department of Local Self Government.

Of course, this is not an easy problem to solve but the Government must consider it profoundly to better both the doctor and the country; the doctor, because he will prove efficient, the country, because it will have competent and experienced doctors.

This will be solved only by finding a way to offer to the young medical men who are energetic to work, and learn and gain experience; the means being a rotatory hospital life sometimes in villages and at other times in towns at headquarters and special departmental hospitals. This requires provincialisation of the medical department under Local Self Government.

The matter will become easy if the medical men in the Local Fund service alone are provincialised leaving the existing Local Fund medical institutions under their control, till it is possible to provincialise even those institutions, which can be taken year by year.

Further, some of the old and serviced medical men who are about to retire between 5 and 10 years have to be sent to enjoy rural life with its limited work as their energies are at an end and wish to have a restful life.

These measures, if instituted, will benefit both the doctor and the people, the work will become easy, the Government need not compel doctors to go to villages, as each doctor will get his turn to some village or other to effect rural medical relief work now and then throughout his service. If once a doctor is posted to a village, the subsequent posting should be to a headquarters or a special departmental hospital and thus it must rotate.

In this connection, I request the Indian Medical Association to take active steps

early to represent the matter to the Madras Government once again to provincialise the L. F. medical men alone although it has represented it to the Government before to provincialise the medical department under local self government as a whole.

Yours faithfully,
J. VISWANADHACHARI,
D M.&S.

N. Vizag
9-4-'48.

Cases of Hyperpiesia

To The Editors, THE ANTISEPTIC, Madras.

Sirs,

In your issue of the ANTISEPTIC of March 1948, on Correspondence side Dr. Pratapsingh qutoes an interesting case.

The patient aged 30 years complains of tired feeling of the eyes after a little work. Further work causes burning sensation and pain; and the vision gets blurred. Dark room examination shows nothing abnormal in the eye. I had a similar case. There were all the symptoms quoted above. There was nothing wrong with the eyes. And also there was apparently nothing wrong with the general health.

After thorough examination it turned out to be a case of high blood pressure. Systolic 240 and diastolic 140. There were no arteriosclerotic changes in the eyes and urine examination did not reveal albumin. It was a genuine case of Hyperpiesia. So high blood pressure should be always kept in mind in such cases.

Yours faithfully,
T. V. MHASKAR,
M.B., B.S.

Main Road,
Nasik City.
30-3-1948.

Treatment for Plague

To The Editors, THE ANTISEPTIC, MADRAS.

Sirs,

I have read with interest 'An Interesting Case of Plague' by Dr. K. D. Bhalerao of Raipur in the March issue of the ANTISEPTIC.'

In the recent plague epidemic at Khamaria, I had treated no less than 200 cases of plague. Out of these cases nearly 50% showed only unilateral glandular involvement either in the inguinal or in the axillary region. In nearly ten cases only femoral glands were involved. About half a dozen cases were noted delirious with or even without rise of temperature.

All of these cases were treated with Sulphathiazole Tablets (Cibazol or M. & B 760) and Alkaline Diaphoretic mixture and 100% success was achieved. I used to add Bromide in the mixture of delirious patients.

Yours faithfully,
R. S. LALL, L.M.O.

Khamaria,
Khairagarh.
24-3-'48.

News and Notes

CARDIOLOGICAL SOCIETY OF INDIA.

Report of the General Meeting of the Physicians of India held on 4 4 '48.

A meeting of the medical men and women of India interested in the subject of Cardiology and called under the auspices of the Cardiological Society of Bengal, was held at the Hall of the Indian Medical Association, Calcutta, on the 4th April, 1948, and a Society was formed under the denomination of "THE CARDIOLOGICAL SOCIETY OF INDIA."

The response to the circular letter sent to Medical Institutions and other individuals all over India was very encouraging and the idea of formation of such a Society received wide support.

A provisional constitution presented by the Jt. Hony Secretaries of the Cardiological Society of Bengal was discussed and accepted with some modifications.

All members of the Cardiological Society of Bengal and all present in this general meeting and all those who had expressed their desire to become members of the Society or were elected to the Executive Committee, were declared Foundation Members of the Society. Annual Subscription was fixed at Rs. 12 and Life Membership at Rs. 250.

Immediately afterwards a special general meeting of the Cardiological Society of Bengal was held and a unanimous decision was taken to dissolve the Society and merge itself along with its assets with the Cardiological Society of India.

The Society is proposing to bring out the first issue of the Journal during the annual Conference of the Society expected to be held in December, 1948, along with the All-India Medical Conference. All communications to be addressed to the Jt. Hony. Secretaries, Cardiological Society of India, 67, Dharamtala Street, Calcutta.

The following were elected as office bearers and members of the Executive Committe for the current year:—

President:—B. C. Roy.

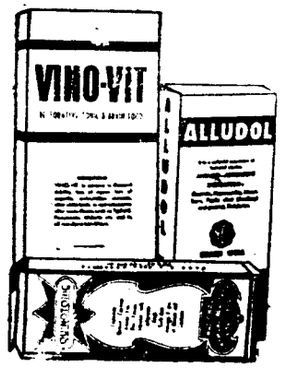
Vice Presidents:—(1) Lt.-Col. Amirchand, (2) Dr. P. Kutumbia, (3) Dr. Rustom J. Vakil, (4) Dr. S. C. Bose, and (5) Dr. U. P. Basu.

Hony. Jt. Secretaries:—(1) Dr. K. S. Mathur, (2) Dr. A. K. Bose, and (3) Dr. J. C. Gupta.

Hony. Jt. Asstt. Secretaries:—(1) Dr. H. K. Roy, and (2) Dr. B. B. Roy.

Hony. Treasurer:—Dr. P. N. Brahmachari.

Members of the Executive Committee:—(1) Dr. Prasad Rao, (2) Dr. S. K. Ghosh Dastidar, (3) Dr S. Ghoshal, (4) Dr. T.K. Raman, (5) Dr. J. C. Patel, (6) Dr. K. N. Gour, (7) Dr S G Vengsarkar, (8) Dr. S. R Verma, (9) Dr. S. C. Das, (10) Dr. J. C. Banerjea, (11) Dr. Sushil Chatterjee, (12) Dr. N. R. Sen Gupta, (13) Dr. Amal Das, (14) Dr. A. B. Mukherjee, (15) Dr. P. K. Chatterjee, (16) Dr. A. C. Ukil, (17) Dr. Sunil Datta, (18) Dr. T. K. Ghosh, (19) Dr. K. K. Sen Gupta, and (20) Dr. B. P. Neogi.



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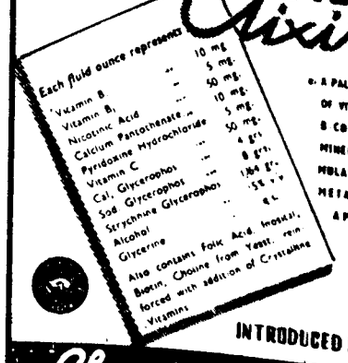

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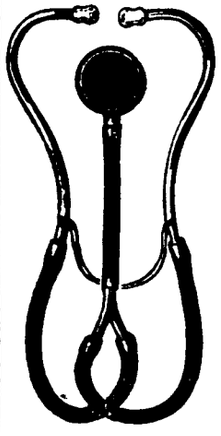

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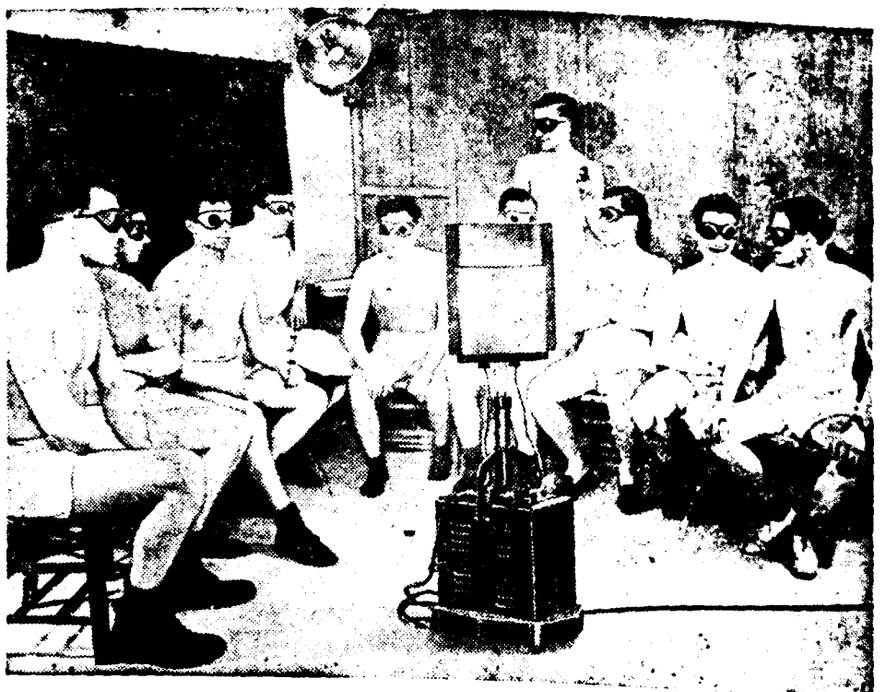

Illustration shows Ratings of the Royal Navy (Submarine Branch, taking tonic sunbaths with the Hanovia 'Centrosol' unit on their depot ship.

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