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Original Articles

Some Liver Disorders*

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THE subject I have chosen to-day of some liver disorders will be dealt with under two main headings, *viz.*, jaundice and ascites. I do not propose to deal with those aspects of the problems which are recognised and about which there is no controversy. I just propose to take up for discussion points about these two symptoms of liver failure on which our views have changed in the course of the last few years.

There is, of course, the classical division of jaundice into hæmolytic and obstructive jaundice, according to MCNEE, the equivalent of which under Rich's classification are retention and regurgitation jaundice.

Taking the obstructive jaundice in the first instance, the obstruction may be within or outside the liver. It is very important to be able to locate the site of obstruction, because there is scope for surgical interference in extra-hepatic jaundice. The differentiating points centre round history and laboratory tests for efficiency of liver function. As regards history, in intra-hepatic jaundice, nausea and other constitutional symptoms of liver damage occur in the beginning, whereas in extra-hepatic jaundice, these symptoms come on late as a result of retained bile. Secondly, between the two, other things being equal, there will be greater variation of icterus index from time to time in intra-hepatic than in extra-hepatic jaundice. Thirdly, liver efficiency tests which are in vogue to-day are:

1. Serial Van den Bergh, or icterus index estimations.
2. Plasma cholesterol and serum albumin and globulin (liver being the chief seat of manufacture of albumin).
3. Hippuric acid excretion test; and more recently cephalin flocculation test.

* Paper read under the auspices of The Indian Medical Association, Madras.

4. Colloidal gold test.
5. Brom-sulphathalein excretion test.
6. Vitamin K required to bring prothrombin time to normal.

I do not propose to waste any time over the techniques or the details of these tests.

I have, however, to take into consideration the sequence of Van den Bergh reaction, for the interpretation we have given it from time to time is based on our changing view in regard to catarrhal jaundice. Catarrhal jaundice was in the old days considered as due to extra-hepatic obstruction. The site of obstruction was the common bile-duct. The inflammation was supposed to have spread into it in retrograde manner, starting from duodenal catarrh. The inaugural symptoms of stomach upset in catarrhal jaundice were thus attributed to duodenal catarrh. When Van den Bergh reaction was first discovered, it always gave a biphasic reaction in catarrhal jaundice and not an immediate direct reaction which one would expect in a pure extra-hepatic obstruction. Instead of doubting the authenticity of our then views on catarrhal jaundice, the usefulness of Van den Bergh's reaction as a qualitative test was questioned. Later on, it was noticed that catarrhal jaundice occurred in epidemics. In certain epidemics liver biopsy was done and necrosis of the liver cells was demonstrated. Two conceptions then arose of catarrhal jaundice,—one in which the jaundice was purely extra-hepatic and the other in which it began in the liver. The question could not be finally solved, because there was practically no post-mortem material available, where the patient died before the late effects on the liver of jaundice were felt. During the last war, however, there have been plenty of opportunities for studying every aspect of the so-called catarrhal jaundice, because it occurred in very heavy epidemics. It is now accepted that the so-called catarrhal jaundice is infective hepatitis, the result of a virus infection. Inaugural symptoms of gastro-intestinal upset, *viz.*, nausea, vomiting, fever, tenderness in the hypochondrium, and, in 25% of cases, enlargement of the spleen are the result of the virus infection. Later on, the chief symptoms centre round intra-hepatic obstruction from necrosis of the liver cells caused by the virus. It is now clear why we always have biphasic reaction in catarrhal jaundice, because the obstruction there was the result of disorganised liver structure caused by necrosis of the liver cells. The last war has also helped us in clearer elucidation of other changes closely related to infective hepatitis. For instance, the so-called arsphenamine jaundice has long been recognised and has been considered as the inevitable result of organic arsenic poisoning. It was known that arsphenamine jaundice could occur several months after the last injection of N.A.B. It has now been established that arsphenamine jaundice is the result of a virus infection,—the virus being transmitted from person to person through the use of the same infected syringe. Arsphenamine jaundice has been completely eliminated in certain clinics by the use of a new syringe for every patient. There is no doubt that transient jaundice may occur as allergic reaction to the arsphenamine injection. That is altogether different. The classical arsphenamine jaundice which results in hepatitis has a much longer incubation period than infective hepatitis. It is now believed that the prolonged incubation period of four months and over in arsphenamine jaundice is due to the unusual mode of infection, *viz.*, through the blood. By

the usual method of droplet or other oral infection, the incubation period is up to a few weeks.

Similar to arsphenamine jaundice, we have jaundice caused by vaccination against yellow fever, protection against measles and even blood transfusion. In all these cases, it is presumed that infection must have come from a non-recognised human source whose blood must have gone into the pool in the preparation of vaccine etc.

It is not finally settled whether the same virus is responsible for infective hepatitis as well as for homologous serum jaundice. Evidence is more or less complete for incriminating the same virus except that the person who has had an attack of infective hepatitis is not totally immune to homologous serum jaundice and *vice versa*.

I have dealt at some length with catarrhal jaundice, because on the changing conception of the ætiology of catarrhal jaundice, much of modern treatment of jaundice depends. In the old days when we thought that obstruction was extra-hepatic and catarrhal, we naturally gave cathartic drugs to relieve catarrh and cut out protein and fat from the diet because there was not only biliary but also pancreatic duct obstruction. Now we know that there is primarily damage done to the liver cells,—the obstruction being only secondary to disorganisation of liver structure, our treatment is to protect the liver as much as we can. There is no place for any cathartics, except perhaps for mild cathartics in the early stages when the patient has nausea, loss of appetite and so on. The modern view is that the diet which protects the liver best is high protein, high carbohydrate, low fat, and high water-soluble vitamin diet. As we no longer postulate pancreatic obstruction, there is no need now to restrict protein. If we see to the low fat content of the diet, especially of cooked fat, and leave the rest to the patient's own discretion, with weightage in favour of bland proteins and carbohydrates, and vitamin content, there is no other treatment required in the great majority of cases, for 99·4% of cases of infective hepatitis tend to spontaneous recovery.

It is further known now that sulphur containing amino-acids are of particular value in protecting the liver. The two most important of these are Methionine and Cystine. Besides the sulphur containing amino-acids, we have a component of the vitamin B complex, *viz.*, Choline. This seems to have a definite protective function on the liver. The role of these three factors in protecting the liver is to protect it against fat infiltration. They are, therefore, called lipo-tropic factors. They protect the liver against excess of fat in the diet and prevent fat-laden cirrhosis of the liver. Their role is comparable to that of vitamin B_1 and D against excess of carbohydrate diet. Methionine alone seems to have an additional protective function, *viz.*, that of preventing liver necrosis. The role of these three factors in liver protection is only one part of the story of our modern conception of liver protection and damage.

We now believe that there are three factors concerned in liver damage—(1) dietetic, (2) infective and (3) toxic. Dietetic factors have just been discussed, but infective factors are the yet unidentified virus of infective hepatitis and homologous serum jaundice, the viruses of yellow fever and Weil's disease and the bacterial causes that may cause infective cholangitis. Of all these infections of the liver, the *most* well-known and commonest is infective hepatitis. Its chief differentiating points from the other infections of the liver associated with jaundice are its persistent leucopenia and

normal sedimentation rate. In doubtful cases, these two points help in diagnosis.

There is no specific treatment for infective hepatitis, but in inflammation of the liver associated with leucocytosis, Penicillin comes in very handy. I have known of cases where patients have been snatched, as it were, from death by Penicillin.

Another point that must be mentioned in connection with the diagnosis of infective hepatitis is its differential diagnosis from malaria. In 25% of infective hepatitis the spleen is enlarged and in malaria there may be bilious vomiting. In certain cases of infective hepatitis, the inaugural fever lasts for several weeks. Apart from the presence of parasites in malaria, one has to depend in such cases for differential diagnosis on the presence of bile in the urine in infective hepatitis (absent in malaria) and on a normal sedimentation rate in infective hepatitis.

The curative value of Methionine, Cystine and Choline in infective hepatitis is yet unproved. The treatment is prolonged, 5 g. a day of Methionine and one 1 g. a day of Choline for several weeks till the patient is absolutely free from disease. But there is considerable experimental and clinical evidence available as regards their protective value.

I may here say a few words about certain old prescriptions for catarrhal jaundice. There is no special virtue in the administration of Glucose by injection, with or without Insulin. Glucose need only be given to the patient when he is unable to retain any food or when he is feeling too drowsy to be depended upon to take in anything, or by nasal feeding as the case may be. Calcium has no value in the treatment of infective hepatitis. It was used with the idea of protecting liver cells and of preventing hæmorrhage for which there is tendency in infective hepatitis. Hæmorrhage can only be controlled by adequate parenteral administration of vitamin K, preferably in aqueous solution. If liver is badly damaged vitamin K can no longer be converted by it into prothrombin. Calcium has no proved protective value for liver function.

I have been unable to understand the rationale of giving Insulin along with Glucose in the treatment of infective hepatitis. For, it must be admitted that in non-diabetic persons, there is no need to give Insulin to promote utilisation of sugar. Fortunately, in view of 99·4% spontaneous recovery, there is scope for a variety of treatment. That is why each exponent of a particular line of treatment claims a high percentage of cures for his own special treatment. The disease is best left alone after seeing to it that the fat intake is well covered by high protein, high carbohydrate and high vitamin diet.

Just as jaundice is the manifestation of acute liver failure, so also ascites is the result of slow progressive destruction of the liver. In fact it has been speculated that a patient who has recovered from infective hepatitis is a potential future candidate for portal cirrhosis of the liver, subject, of course, to the nutritional and toxic effects coming into operation. The so-called alcoholic origin of portal cirrhosis of the liver only requires to be mentioned as one of the ætiological factors. Too much importance was attached in the past to the alcoholic origin of cirrhosis of the liver, as if it was a specific ætiological factor. We now believe that the role of alcohol in cirrhosis of the liver is dietetic and toxic. Chronic alcoholic addiction certainly tends to dietetic deficiency and it also causes toxic hepatitis.

The recent work of this triple ætiological role of cirrhosis of the liver must enable us to prevent cirrhosis both in children and in adults, and, at the same time, it improves the outlook in early cirrhosis of the liver, before the liver has contracted sufficiently to cause irreparable fibrosis.

In children it is believed that Choline is the most important protective constituent against liver damage. It may be that Methionine may also play some part. In adults, the treatment of cirrhosis of the liver with the advent of modern ideas of its ætiology is not as hopeless as it was a few years ago. In our own province, some years ago, we were asked to try the effect of a pure milk diet on cirrhosis of the liver. This treatment was apparently started by some sub-assistant surgeon in service who seemed to have had good results. I have myself tried four cases and followed them up completely. Two of them died and two recovered completely, and in one of the cases that recovered, I have had the opportunity of seeing the effect of milk treatment on two different occasions. On both the occasions, the ascitic fluid completely disappeared. Retrospectively, in view of the modern work on cirrhosis of the liver, it is clear why milk had such good results. It is essentially a high protein diet, and milk protein is of the best quality. It is also clear now that one can liberalise the diet and need not insist on an exclusively milk diet. In practice, however, I restrict the diet to milk and fruits and in intelligent patients to rice, etc., without any cooked fat, chillies, condiments and spices. This I consider to be of some value when the patient's liver is still enlarged and palpable. To reinforce the protein in such a diet we have hydrolysed proteins. As regards drugs, we have now to depend upon Methionine and/or Choline.

Where the liver is palpable 5 g. are given for three to five months. More recently, crude liver extract (Cohn's fraction) has been used by daily intravenous injections with success. The role of liver extracts in the cure of cirrhosis of the liver is not clear. It has been suggested that it just increases the appetite of the patient and his assimilation of food. At this stage I should like to emphasise the importance of differential diagnosis of hepatic from cardiac ascites. Ascites as a result of cirrhosis of the liver may be due to two causes (1) portal obstruction, and (2) toxic cirrhosis of the liver. In portal obstruction, the ascites will be the outstanding or only manifestation. In toxic cirrhosis, it will be part, and not necessarily the first manifestation, of a general anasarca.

The simulation with heart failure will in the latter event be greater. Whatever the sequence of ascites in cirrhosis of the liver, it should not be attributed to cardiac failure, unless there is clear and unequivocal evidence that hepatic congestion is present. Increased intra-abdominal pressure may cause pressure congestion of the bases of the lungs and transverse increase in the diameter of the heart. Cardiac murmurs may be caused by embarassment. But murmurs, if they are systolic, are not diagnostic of heart failure. Impairment of the heart's boundaries in heart failure is not accompanied by elevation of the apex beat, as it is in primary ascites.

I cannot sufficiently emphasise this particular difficulty in diagnosis, because, I have had cases of cirrhosis of the liver referred to me again and again as heart failure and treated ineffectively with Digitalis.

I am aware that my treatment of the subject is sketchy and incomplete. I have no intention of making it exhaustive. I mean my remarks to be provocative.

———

Classification of Leprosy

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Introduction.—A system of classification has its value in all diseases. In leprosy it has an increased importance because of the existence of wide variations in the clinical forms of the disease, which are associated with differences in prognosis and epidemiological features of the disease.

The increased importance of a system of classification in leprosy is coupled with marked difficulties in evolving a satisfactory method of classification of the disease. This would be apparent from the repeated changes in the system of classification even within recent years; we had the pre-Manila classification, the Manila classification of 1931, and the Cairo classification of 1938. It appears that the Cairo classification is also going to be replaced by a fresh classification at the next International Congress which is to be held in Cuba early next year. The proposed classification has been evolved by South American workers and is based on their histological studies. The classification evolved by these workers was known, till recently, as the South American classification, but since its adoption by the Second Pan-American Leprosy Conference held in Brazil in 1946, it is now known as the Pan-American classification. This classification will be one of the important subjects to be discussed at the forthcoming International Congress.

It is essential that the matter should be thoroughly discussed by workers in all parts of the world where leprosy is common. It is with this object that this paper on classification is being presented at this Conference. The best method of discussion would perhaps be to begin with a consideration of the defects on the Cairo classification, the proposed Pan-American classification and its defects, and then to suggest a system of classification which may be free from these defects.

The Cairo classification and its defects.—As is well-known the Cairo classification divides cases of leprosy into two main types, the 'neural' and the 'lepromatous'; the neural type is further sub-divided into sub-types or varieties according to the nature of the lesions. The classification is primarily a clinical one, although certain terms have been used which are based on the associated histological findings such as 'tuberculoid' and 'lepromatous.' Besides being clinical, the classification has a bearing on the prognosis and infectivity of the case; the prognosis in the neural cases is on the whole good, and most of them are non-infective or "closed" cases; the prognosis in the lepromatous cases is on the whole bad, and all of them are infective or "open" cases.

While the Cairo classification was an improvement on the previous classification in use at that time, it has certain defects. The main defects of this classification are (*a*) the terms used for the two main types are not consistent; one (neural) being based on topographical considerations, and the other (lepromatous) on the histological findings; (*b*) a number of cases of the lepromatous type have symptoms of marked nerve involvement and, therefore, to reserve the term 'neural' exclusively for the other type is [illegible]ther misleading; (*c*) no sub-types are provided in the lepromatous type;

[illegible]r presented at the All India Leprosy Workers' Conference, Wardha, C.P.

and (*d*) while a majority of the cases can be grouped under one or the other type, there is a small number of cases in which the clinical features are not clear-cut and not typical of either type; the Cairo classification does not provide any place for such cases.

The first two defects are concerned with the terminology and should not offer serious difficulties, although it would be desirable to have terms which are consistent and more informative. The third defect can be easily removed by introducing sub-types into the lepromatous type. The last defect is, however, a real one, for it makes difficult for certain cases to be classified; for example, a patient may have thick localised lesions resembling a lesion of the neural type (tuberculoid), but the surface of these lesions may be smooth with ill-defined margins like the lesions of the lepromatous type; such cases have been referred to by some workers as cases of 'doubtful classification,' and by others as 'intermediate' or 'border line' cases because of the histological features.

The Pan-American classification.—The Pan-American classification is mainly a histological classification. On the basis of histological findings it separates cases of leprosy into three main types; Tuberculoid, Lepromatous and Uncharacteristic; the Tuberculoid and Lepromatous types have distinct histological features while the Uncharacteristic type incudes the group of cases with no distinctive histological features.

The three types are sub-divided according to the varying clinical forms; the tuberculoid includes macular, papular, neural, and reactive; the lepromatous form includes macular, infiltrative, nodular, neural and generalised; and the uncharacteristic includes macular, neural and neuro-macular forms. The types and clinical forms of the disease according to this classification may be summarised as bleow:—

Type	*Variety of clinical form*
Lepromatous (L)	Macular Infiltrative (in plaques or diffuse) Nodular Neural Generalised
Uncharacteristic (I)	Macular Neural Neuro-macular
Tuberculoid (T)	Macular Papular Neural Reactive

The defects of the Pan-American classification.—The Pan-American classification is based on the histological findings in the lesions of the different types, and histological terms have been used to indicate the main types. The authors of the classification, therefore, consider it to be a scientific one. However, there are certain features of this classification which would make it unsuitable for general adoption. These features may be summarised below:

1. That it is based on histological findings is, according to its authors, its main merit. But one has to remember that a majority of the cases of leprosy have to be diagnosed and classified by workers in the field to whom facilities for histological examination are not available.

2. The term "uncharacteristic" is inopportune. The authors of the classification have no doubt coined it in the histological sense but in practice its use would be very confusing, since the term would have to be applied to cases in whom the lesions are clinically quite characteristic of leprosy. For example, it would be very confusing to call "uncharacteristic" a case of leprosy with a flat hypopigmented anæsthetic patch which, for all intents and purposes, is a lesion, characteristic of leprosy. If this classification were to be adopted, a large number of cases found in India would have to be called "uncharacteristic" although, as explained above, clinically there is nothing uncharacteristic about them.

3. Cases of leprosy with affection of nerves associated with sensory and other changes, but without skin lesions, are quite commonly seen and constitute a clinical entity. The Pan-American classification does not recognise this clinical entity, but splits up such cases into tuberculoid, lepromatous and uncharacteristic on the evidence to be obtained by histological examination of the biopsy material removed from the affected nerves. This position may suit the students of histology, but certainly not the ordinary leprosy worker—and most cases of leprosy have to be dealt with by such workers.

4. Apart from the above considerations the histological features on which so much reliance has been placed are not a constant feature in all cases of the same clinical type.

In the lepromatous cases while the histology is usually typically lepromatous, one often sees foci of epithelioid cells and even presence of giant cells, and there would be no justification to call these cases atypical or uncharacteristic simply because of these findings.

Similarly in the tuberculoid cases, although the histology is usually typically tuberculoid, one often finds features like marked vacuolation of the epithelioid cells, and there would be no justification to call such cases atypical or uncharacteristic simply because of these findings.

The histology of all the flat patches is not always 'uncharacteristic' *i.e.*, of a chronic inflammatory nature. In a large number of such cases at least in India there are found tuberculoid foci, and in several others a tendency to such arrangement. It would appear that in most cases the histological differences between a flat patch and a tuberculoid patch are more in the nature of differences in the degree of tuberculoid activity, rather than any essential difference in the type of tissue reaction.

Moreover, even in the same case the histological findings are not constant during the various stages of activity of the lesions. For example, in a tuberculoid lesion with typical tuberculoid histology during the quiescent period, the histology may become atypical during the phase of reaction or increased activity, and with the subsidence of activity the histology may become simple or uncharacteristic.

While the histological findings are more or less clear-cut, in case of the lesions which are clinically typical of one or the other type, the histological picture is subject to considerable differences regarding its interpretation in case of the lesions which are atypical clinically, and these are the very cases in which clarification is sought by a histological examination. Between typical tuberculoid and lepromatous histology there is so much gradation from one to the other that the terms 'atypical tuberculoid,' 'doubtful' and 'typical leproma' have to be coined, and, in several instances, a worker finds it quite difficult to choose between, say 'atypical tuberculoid' and 'doubtful' or between 'atypical leproma' and 'doubtful.' Naturally in such cases the personal factor comes so much in the picture.

5. This classification altogether ignores the relationship which exists between flat patches (the so-called uncharacteristic patches) and the tuberculoid patches. This relationship is indicated by the histological findings in several of the flat patches and by the flat patches sometimes becoming tuberculoid and *vice versa*.

Requirements for a workable system of classification.—From the foregoing it would be clear that the Pan-American classification is not likely to get universal support. If adopted, it is doubtful whether it would stand the test of time.

To be generally acceptable, a system of classification will have to fulfil certain requirements. Below are summarised the main requirements which I think should be considered in this connection:—

(*a*) It should be primarily clinical and should, as far as possible, be simple, consistent with its being informative regarding the prognostic and epidemiological features of the disease. Of course, in the production of such a classification advantage should be taken of the knowledge gained so far by histological, bacteriological and immunological studies.

(*b*) It should find a place for all the different clinical manifestations found in leprosy. However, one should be on the guard against a tendency of multiplying the types or varieties on the plea of slight variations in clinical, immunological and histological features; otherwise there would be no end to the number of types and varieties, since when variations in all the features are considered together, we are bound to get a large number of combinations. The recognition of all the different combinations as so many types and sub-types will result in a more complicated rather than a simplified classification.

(*c*) In grouping these various manifestations due regard should be paid to the immunological and the histological features, and the groups should be so arranged as to indicate the relationship existing between them.

(*d*) The terms applied to the groups should be informative and, as far as possible, consistent, but one need not be very fussy about a particular term as long as the significance of the term is clear. Therefore, in a classification based on clinical findings, a certain term, if otherwise suitable, should not be shunned simply because it is a histological term.

(*e*) It would be much better if the classification in vogue could possibly be modified so as to rectify its defects rather than introducing a new classification.

Suggested modification of the Cairo classification.—The Cairo classification has now been so widely adopted and its terms are so well understood that before replacing it by a fresh classification one should explore all possibilities of modifying it in a way so that its defects are rectified without its having to be scrapped. With all its defects, the Cairo classification does divide leprosy into two main types which have a prognostic significance—the benign or the less serious type, and the malignant

or the more serious type. By so doing it takes into account the relationship that exists between the 'simple' and the 'tuberculoid' patches since both of them are included in one type, the neural type. There is much to be said for retaining this classification in its main outlines though attempts should be made to rectify its defects.

The main defects of the classification have already been pointed out, and attempts to remove these defects have to be made in two directions; firstly by amplifying it so as to provide in it a place for all the cases, and secondly by trying to find more suitable terms to replace the terms which are open to certain objections.

As regards the necessity of amplifying, it needs amplification in two respects: firstly by the introduction of sub-groups in the lepromatous type to indicate the various forms of lesions seen in this type, and secondly by providing a new type for those cases which cannot be grouped into the two existing types because of the lesions in these cases being not typical of either of the two types.

Regarding the necessity of substituting the terms used to indicate the two main types it is generally agreed that the term 'lepromatous' is quite satisfactory, and does not need any modification. The necessity for modification arises in the case of the term 'neural.' The two objections against this term are that it is a topographical term whereas its counterpart (lepromatous) is a histological term, and that the nerve involvement is not confined to this type. It would be desirable to find a more suitable term to replace it, but it is certainly difficult to suggest an alternative. I wonder if reversion to the term 'anæsthetic' would be found more acceptable; of course, the two objections against the term 'neural' would still be valid; the term would be clinical and not histological like its counterpart, and anæsthesia is not confined to this type, but may be found in the other type also. As previously stated the origin of the term (whether histological, clinical or topographical) should not be of great consequence, and the fact that anæsthesia is also found in the other type should not also matter very much because after all sensory changes are a characteristic feature of this type, while they are not usually a marked feature of the other type. However, if the term 'anæsthetic' is not acceptable, perhaps it may be possible for some one else to suggest a more suitable alternative.

A new term will have to be found for the cases with lesions not typical of either of the two main types. They may be termed 'uncharacteristic' or 'atypical,' using the term in its clinical and not the histological sense.

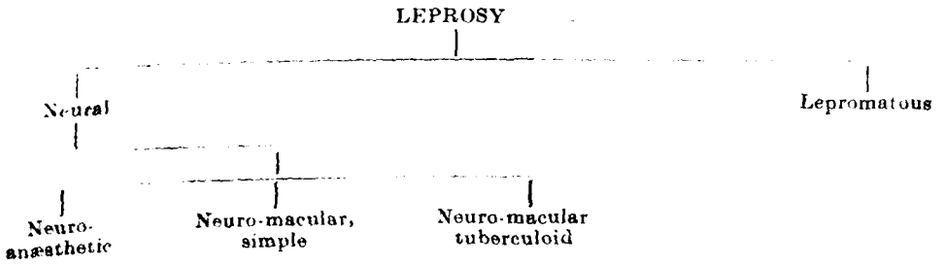
The three main types should then be subdivided according to the forms of the lesions. The present neural type, possibly after being renamed, could be subdivided into neuro-anæsthetic, maculo-anæsthetic and tuberculo-anæsthetic; the lepromatous into diffuse, macular, infiltrative and nodular; and the 'uncharacteristic' or the 'atypical' into a number of sub-types according to the different lesions encountered under this head. To this classification should be added detailed description of the clinical, bacteriological, immunological and histological features commonly found in the various sub-types.

The above suggestions would mean retaining the Cairo classification in its essentials, amplifying it by creating a new type to include the cases

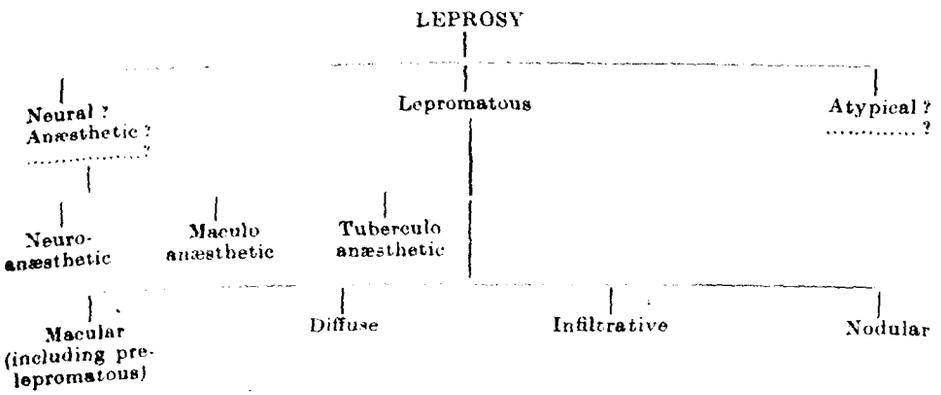
which find no place in the existing classification, and by introducing sub-types into the lepromatous type.

The following diagramatic representation would show the difference between the original Cairo classification and the suggested modification of that classification:

Original Cairo Classification

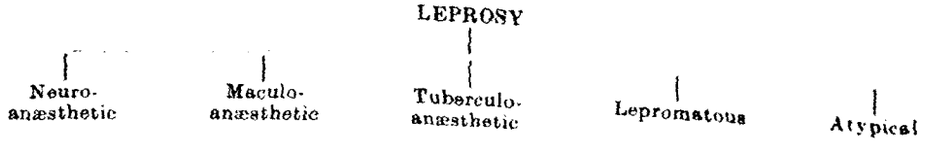


Suggested Modification of the Cairo Classification



This modification will meet most, but not all the objections against the Cairo classification. However, it would fail to satisfy those workers who are keen to place the 'tuberculoid' leprosy in a type by itself. I have already stated that the maculo-anæsthetic and the tuberculoid patches have so much in common between them, and it would not be very logical to consider the two varieties as two separate types; it would be more in keeping with the actual state of things to place them as two sub-types under the same type. However, to meet the point of view of the workers who are very particular to have the tuberculoid patches included as a separate type, the Cairo classification may have to be further modified. For this purpose it is suggested that the three sub-types under the type 'neural' or 'anæsthetic' may be raised to the status of three separate types. Thus we can have neuro-anæsthetic to denote nerve involvement associated with sensory changes but without patches in the skin: maculo-anæsthetic to denote the flat patches with sensory changes (the term anæsthetic serving to differentiate them from the flat patches of the lepromatous type, and tuberculo-anæsthetic to indicate the thick raised patches with sensory changes) (the term anæsthetic serving to differentiate them from thick patches found in the lepromatous type). The relationship between the flat patches and the tuberculoid patches would be indicated by the common ending 'anæsthetic.'

The main types according to this modification can be diagramatically shown as under:—



The above modification of the Cairo classification can as well be considered to be a modification of the Pan-American classification. It retains the two main types (tuberculoid and lepromatous) of the American classification, but splits up the 'uncharacteristic' into neuro-anæsthetic, maculo-anæsthetic, and atypical, the last type being really the 'uncharacteristic'. The effect of this modification would be that a space is found for the neuro-anæsthetic lesions and the flat anæsthetic patches; and this appears to be a decided improvement since both these kinds of lesions are characteristic of leprosy. The term 'neural' is avoided, and the relationship between the flat and the tuberculoid patch is indicated by both of them having common ending.

Therapeutic Uses of Nicotinic Acid*

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THE results obtained by SPIES, BEAN and STONE (1938) strongly suggest that Nicotinic Acid or closely allied substances are essential to the integrity of the cells of the body. Prolonged deficiency first produces ill-health and eventually pellagra[1]. The field of its therapeutic utility, consequently, is wide and is becoming wider as time passes on. It should not be surprising when deficiency states are common (AHMAD, JOSEPH, 1942)[2]. Frank cases of pellagra are not common but ill-health due to its deficiency, so aptly named "prepellagrous state" by AHMAD are certainly not infrequent if one is on the lookout for it. Their frequency becomes apparent by applying the simple harmless therapeutic test of giving it in doubtful cases. I have found it useful in a variety of conditions some of which are not mentioned in literature. It will be of interest to survey briefly its therapeutic use in various morbid states including the observations I made.

Deficiency diseases.—For pellagra Nicotinic Acid is looked upon as a specific and is proving useful in sub-clinical manifestations of this disease which appear in insignificant disturbances of the gastro-intestinal, nervous and dermal systems[3].

Respiratory system.—It has been found effective in controlling asthmatic paroxysms (MAISEL and SOMKIN, 1941-'42)[4]. In one of my cases of diabetes insipidus, described below, the asthmatic fits of the young man were also controlled although it was not primarily given for this condition.

Skin.—The skin manifestations of pellagra yield to Nicotinic Acid therapy. One meets with persons who exhibit deeply pigmented patches on their body surfaces; but in the absence of the signs of pellagra they

* Specially contributed to THE ANTISEPTIC.

cannot be diagnosed as pellagrous. They may, however, be in a prepellagrous state. Many of them are benefited by the administration of Nicotinic Acid.

Vascular system.—Nicotinic Acid has been successfully utilised in the treatment of angina pectoris (STOKES, 1944)[5]. Not long ago I had under my care a case of angina of effort in an old lady of about 80 years. It had become so severe that mere turning in bed used to bring on an attack. She consequently had remained confined to bed for several months. She had become very weak and her blood pressure had fallen to 98/50. When all other measures had failed, I tried as a last resort Nicotinic Acid about which I had read in the *Journal of the I.M.A.* of May, '45. Diffidently I made a beginning with a small dose of 100 mg. daily but encouraged with the result I soon doubled the dose. I was gratified to find a marked improvement in her general condition, to note a gradual rise in her blood pressure and to see the very patient, who could not turn in bed without experiencing pain, upon her legs. After about two weeks she could walk slowly aided by her relatives without the recurrence of pain. Nearly five months have elapsed and she continues immune to her attacks of pain on a dose of 50 mg. daily which too she takes very irregularly.

RACHMILEWITZ and BRAUN (1944) noted that the administration of Nicotinic Acid eliminated cardiographic changes in nicotinic deficiency[6].

Digestive system.—After reading the illuminating article by Captain AHMAD in the Oct. '43 issue of the ANTISEPTIC[7] I always kept in view the possibility of nicotinic deficiency manifesting itself in some form of digestive derangement. The one guiding feature of nicotinic deficiency, although not pathognomonic, is the accompanying psychological morbidity. In most cases there is simultaneously a deficiency of other vitamins particularly B_1. Nicotinic Acid in such cases reinforces the action of vitamin B_1 and at the same time clears up the mental state. Cases of diarrhœa, vomiting, anorexia, flatulence and sluggishness of the bowel action are benefited if Nicotinic Acid is added to the usual treatment. In one case of peripheral neuritis with digestive derangement vitamin B_1 cured the condition but the patient still suffered from impaired appetite and discomfort in the abdomen and was depressed and unhappy. The latter condition led me to add Nicotinic Acid to his treatment and I was pleased to find the patient completely relieved.

VIRASON and MONSOLIN (1943) found Nicotinic Acid useful in the habitual vomiting of infants and in those with gastric atonia[8]. They observed improvement in gastric tone and gastric evacuation as well as acceleration of peristalsis. In difficult cases of persistent vomiting of pregnancy I have found Nicotinic Acid helpful. It is probable that persistent vomiting interfering with nutrition leads to nicotinic acid deficiency which further disturbs digestive function establishing a sort of vicious circle.

Nervous system.—That Nicotinic Acid exerts marked influence on the nervous system has been observed by CLECKLEY, SYDENTRICKER and GEESLIN (1939)[9]. They tried it in 19 cases of stupor, in which there was no indication of pellagra, with dramatic results in 15. It has also been found useful in atypical psychotic states[10] as well as in definite psychiatric disorders, *e.g.*, maniac excitement, delusion, hallucination, disorientation, delirium tremens, etc.[11] GOTTLIEB (1944) is of opinion that an appreciable

number of cases of mental confusion or stupor diagnosed as uræmia, arteriosclerosis, dementia or cerebral vascular accidents are really due to acute nicotinic deficiency.[1,2] He describes five cases and refers to twelve other cases of HARDWICK (1943) and to one case of CLECKLEY (1939).

Besides these cases of psychiatric disorders Nicotinic Acid proves of real utility in milder cases of mental confusion and other 'mental states' one frequently meets. It has been found to do real good in cases of neurasthenia, nervous irritability, mental excitement, nervousness, hysteria, etc. Its deficiency may not be the chief cause of such nervous and mental states but certainly contributes to their severity. The deficiency can be both chronic and acute, mild or severe. Chronic deficiency is met with in prolonged illness or malnutrition and acute deficiency producing severe and serious mental disorders have been observed by GOTTLIEB. According to some, pellagra characterised with its nervous and mental features is due to severe deficiency. Mild deficiency manifests itself in varied but mild mental and temperamental disturbances, *e.g.*, depression, irritability, pessimism, unhappiness, etc.

A case of neurasthenia in a man of 49 had assumed an acute form and lasted from Feb. '45 to Nov. '45. The mental condition can better be described in the patient's own words as he used to communicate his condition in writing. He wrote to me in Sep. '45, "...I want to do a thing but cannot because the will power is weak.....Sometimes I think that a lingering death is in store for me.....It is all due to the agitated condition of my mind. I think over my troubles and want to communicate them when I visit you but somehow or other I can't when I am face to face with you.... ...There is hardly any inclination to leave my bed in the morning. There is no inclination to read newspapers, books or do office work. I can't concentrate properly on anything. There is mental agitation. There is a load on the heart. There is no pleasure in anything. Everything which I have to do becomes a nuisance. Whatever I do is a matter of routine and is done mechanically with no heart in it. I don't feel inclined to visit anybody or any place or talk to anyone. I have got fed up with life..... A little strain or concentration brings on exhaustion. There is general debility. The whole system appears to be upset. There is no peace or contentment anywhere except at one place which only can bring to an end my miseries. But this is beyond one's power. One must suffer as long as he is destined to suffer....." Thus goes on this long pathetic letter.

Every possible remedy, sedatives, vitamins, tonics etc. had been tried with no effect. There was no indication of any deficiency. As a last resort Nicotinic Acid was given at the end of October. Surprisingly there was marked improvement in his mental state within a week. After two weeks he was not only his usual previous self but also became more cheerful, bright and mentally alert than he had been for years.

Cases of hysteria, depression, nervousness, etc., have also benefited from Nicotinic Acid therapy. In some the temperament and mental state have shown improvement for the better. In all these cases there was clinically no indication of nicotinic acid deficiency. There can possibly be two explanations of the improvement in these cases. Either it can be assumed that they were all sub-clinical cases of deficiency, or that Nicotinic Acid exerts a beneficial influence on the nervous system.

In cases of protracted illness and prolonged malnutrition there is every likelihood of the occurrence of deficiency including that of Nicotinic Acid. Patients of dyspepsia, chronic diarrhœa, chronic gastric indigestion develop an abnormal mental state, become neurasthenic and are thereby rendered unhappy. In typhoid and other exhausting diseases the patients develop a peculiar mental state. In all these cases Nicotinic Acid is of immense benefit. I cite, as illustration, two cases. A boy of 15 suffering from typhoid became delirious and his special senses were also affected. Sedatives controlled his delirium but in spite of them his mind remained cloudy and senses impaired. Nicotinic Acid brought about rapid improvement in his mental condition. A woman of 30 had been suffering from diarrhœa for six months. She was depressed, pessimistic and irritable. She would burst into fits of weeping and was sanguine that she was going to die and that nothing could save her. This state of her mind interfered with proper examination and treatment. Under Nicotinic Acid she regained a sensible outlook and a reasonable attitude within a week. She was left with her physical ailment which became easy to manage.

Renal system.—I have not come across in literature any mention of the action of Nicotinic Acid on the renal system. It will be useful to record here my observations of its action on urination. The cases where it does good can be classified into several categories.

1. One comes across cases where there is an urgent and uncontrollable desire to pass water which does not allow them time to visit the bath room and they often wet their clothes. In such cases Nicotinic Acid works wonders. To cite one of several cases, a lady of about 40 was very miserable as nothing did her good. Her urine was free from abnormalities and there was no history of any infection of the urinary tract. One tablet of 50 mg. given three times daily gave her prompt relief and its continued use produced lasting result which has continued for nearly two years.

2. There are people who have to rise once or twice to pass water at night. They are not diabetic, their urine is not strongly acid and there is no history of urinary infection. It is simply a nervous condition or merely a habit which unimportant by itself is often disturbing. In these cases too Nicotinic Acid 50 mg. twice or thrice daily proves useful. It has generally to be given for a month or more to give permanent relief. It appears that by allaying the irritability of the nervous system it breaks a bad habit. Or, it may be influencing directly the anti-diuretic function of the posterior pituitary as seems likely from its action in cases of diabetes insipidus.

3. One sometimes meets cases who are subject to attacks of polyuria lasting a day or two or sometimes a few hours. There is copious and frequent urination with increased thirst, the urine being of low sp. gr. To my mind this condition has something to do with the anti-diuretic function of the post pituitary which is adversely affected by digestive or emotional upset. If this conclusion be correct they are merely temporary attacks of diabetes insipidus just as temporary glycosuria can occur after excessive consumption of carbohydrates or nervous shock. In these cases Nicotinic Acid cuts short these attacks; 50 mg. every four hours for a day or two suffice to stop polyuria.

4. Encouraged with its beneficial action in cases of diuresis I tried Nicotinic Acid in two cases of diabetes insipidus with gratifying results.

A young man of 18 had been consuming excessive quantities of water and passing as much as 336 ounces of urine in 24 hours. This complaint had been there from his childhood but had become more acute for the last 3 or 4 years.

His family history revealed that he had four brothers and three sisters. Two of the brothers besides himself and one sister out of three were suffering from a similar trouble. Their parents were living and were free from this trouble but their grandfather (*i.e.* father's father) had suffered all his life from a similar trouble.

He also complained of general weakness, disturbance of sleep on account of frequent micturition, asthmatic attacks and constipation. He was somewhat emotional and easily upset by the events of life. Examination revealed no abnormality but his P. R. was 106 and his B. pressure was 102/60. Urine contained no albumin or sugar and was very light in colour with a specific gravity barely above that of water. (1002 or so).

He was given Nicotinic Acid 50 mg three times daily. In the first 24 hours he passed 252 oz., a diminution of 84 oz. or 25%. The dose was increased to four tablets daily with a further reduction, during the course of the next few days to 180 oz. bringing the total reduction to 46%. The dose was then increased to 6 tablets of 50 mg. daily with a further reduction in the quantity of urine which, however, was not measured. But according to the estimate of the patient, it amounted to 3 seers *i.e.* 96 oz. At this stage unfortunately the patient left the treatment. During the course of treatment he felt better, was relieved from the fits of dyspnœa, and could sleep better, the frequency of micturition having decreased markedly. The reduction in the quantity of urine amounted, after 10 days of treatment, to 72%.

The second case was that of the sister of the above young man. She was 35 years of age and mother of several children. She was also emotional and hysterical. Her thirst was unquenchable and she used to micturate 20 to 23 times daily passing about 350 oz. of water. Her sleep was disturbed which depressed her physical condition and mental state. She could not be given full doses of Nicotinic Acid as the transitory reaction upset her. Starting with 25 mg. per dose it was worked up to 50 mg. per four times daily. Even under this small dosage there was obvious improvement in her condition. The frequency decreased to 6 or 7 times while awake and once or twice during sleeping hours. She felt much relieved, the frequency having decreased by about 40%. The quantity decreased to about 70 oz. during 24 hours. For the last 6 months she has been taking 2 or 3 tablets of 50 mg. per day but very irregularly. In spite of this irregularity she has been free from copious and frequent urination and excessive thirst.

Both these cases had suffered from this disease from their childhood and were so used to it that they did not regard it as a disease requiring prolonged treatment. Having previously tried various forms of treatment without relief they had lost all hope of cure and were resigned to their fate. The improvement under Nicotinic Acid therapy more than satisfied them and feeling more comfortable than they did ever before they broke away from the botheration of regular treatment and irksome observation.

By reporting my observations my object is to bring them to the notice of the profession so that its members may try this line of treatment when they come across cases of diabetes insipidus or of nervous and/or digestive

(toxic) polyuria. I realise that my results are not conclusive but cases of diabetes insipidus are not common.

Nicotinic acid cuts short attacks of polyuria and brings about dramatic improvement in diabetes insipidus. To my mind its position, at present, is like that of Insulin. It stimulates the anti-diuretic function of the post pituitary. Whether it can cure this incurable disease only time and further observations can show.

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Experiences Gained from the Study of Anæmia Cases at Wardha*

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Year	Total number of cases treated (outdoor.)	Anæmia cases.
1942	35070	588
1943	36760	258
1944	44013	218
1945	37153	207
1946	36566	433

Indoor cases (Female side)

Year	Total No. of patients admitted	Percentage of incidence	Advanced anæmia cases treated	Deaths
1942	575	2·27	13	1
1943	539	1·85	10	2
1944	565	2·30	13	—
1945	570	0 70	4	—
1946	581	2·27	13	2

* Specially contributed to THE ANTISEPTIC.

Indoor cases (Male side)

Year	Total No. of patients admitted	Percentage of incidence	Advanced anæmia cases treated	Deaths
1942	484	0·41	2	—
1943	551	2·00	11	4
1944	497	0·80	4	2
1945	548	1·46	8	3
1946	545	2·93	16	3

Anæmia is a pathological condition in which the quantity or quality of the circulating red cells is reduced below the normal level. It is merely a symptom than a disease.

Morphologic—Etiologic classification of anæmia

Type of anæmia	Colour index	Cell diameter M.C.D. microns	Cell volume M.C.V. Cu. microns	Probable cause
Normocytic	0·9-1·10	7·3-7·8	85-100	Bone marrow disturbances.
Microcytic	0·4-0·8	5·5-6·5	65-85	Iron deficiency.
Macrocytic	Above 1·1	7·8-8·3	100-130	Liver extract deficiency.

Classification of anæmia on the basis of colour index, cell volume, cell diameter or all the three has become deservedly popular chiefly because it gives orientation regarding the etiologic and therapeutic factors.

In recent years the incidence of anæmia is much increased. At present it is one of the most frequent causes of morbidity and debility in our country. In the past, there was plenty of Nature's fresh food, green vegetables and milk to meet the demands of the people. This is because people remained more in villages and tried their level best to get the benefit out of their soil, poultry and cattle. Now there is much disturbance caused because everyone aims at city life with all its pleasures bestowed upon him. All this has brought about a total disturbance in balance of income and expenditure on the one hand and demand and supply on the other. General income of average individual is less, very much less than that of the expenditure (to which aimed), similarly the supply is much less than the demand.

Anæmia has a nutritional background consequent upon the deficiency in the quality and quantity of food or upon its defective digestion, assimilation or final utilization.

Now for a man to have all proximate principles in his diet he has to spend at least 0-12-0 (annas twelve) for each meal. That means Rs. 1-8-0 per day and Rs. 45 per month. An average Indian is now earning Rs. 19 per month; with this income he has to feed his wife and children. Now this will make it clear to all that an average Indian anyhow exists but cannot live with one meal only. When such is the state of affairs how can he think of fruits, medicines and green vegetables while dreaming to have all the pleasures of a town life?

Chief signs and symptoms.—Met in this part of India among the patients having anæmia.

(1) Loss of appetite.
(2) Weakness.
(3) Pallor.
(4) Smooth shiny skin.
(5) Premature greyness of the hair.
(6) Dizziness.
(7) Noises in ear.
(8) Headache.
(9) Insomnia.
(10) Discomfort.
(11) Poor appetite.
(12) Flatulence.
(13) Stomatitis.
(14) Sore tongue.
(15) Amenorrhœa in females.
(16) Breathlessness.
(17) Palpitation.
(18) Oedema round the ankles and feet.
(19) Serous effusions.

Most common cases of anæmia met with in this hospital in these 5 years were:—

I. (1) Consequent on malaria and associated with it.
(2) Following pregnancy and with pregnancy.
(3) Accompanying (*a*) hæmorrhoids, and (*b*) menorrhagia.

II. (1) Associated with (*a*) Hookworm infection; and following it. (*b*) Associated with roundworm, flat worm and following it.
(2) Diarrhœa.
(3) Pure nutritional.

Uncommon cases.—(1) With nephritis; (2) sprue; (3) pernicious anæmia; (4) chlorosis; (5) with cirrhosis of liver; and (6) leukæmia.

Chronic malaria.—In these cases apart from the presence of malarial parasites other important changes take place in the blood. In each fresh attack of fever, large number of red cells are destroyed, thus resulting in anæmia. In severe cases hæmoglobin fell down to 60% and red blood cells to 40%. Colour index was also much reduced. There was definite increase of mononuclear cells in all cases and in some, count of these going to 12%.

Anæmia of pregnancy.—In the female wards these type of cases formed a large proportion.

In these cases blood examination showed high colour index and increase in size of the red blood cells. In all these cases onset was very insidious and hence neglected for a long time and patients came only when the pregnancy was far advanced with severe symptoms.

The number of cases in Europe are very few as compared with those of India.

The reproductive function in women makes rather a heavy demand on the blood-forming organs. At each menstrual period about 15 to 150 cc. of blood is lost. A normal confinement generally entails a loss of about 250 cc. of blood which may be increased by 10 to 15 times in post-partum hæmorrhage. In these cases the blood picture is of macrocytic type. There is presence of hydrochloric acid in the gastric analysis and with this there is absence of the symptoms of the *subacute combined degeneration.*

Here it is most common among the Hindus—then come the Mohammedans and least common amongst the Christians.

True pernicious anæmia in pregnancy is rare and majority of the cases met with here appear to be of the secondary microcytic hypochromic type

usually responding with greater or less rapidity to treatment of primary cause in addition to massive doses of iron and thiamax.

Clinical manifestation of these cases.—In most of the cases the patients are multiparous and it occurs commonly in the second half of the pregnancy starting insidiously.

In the 8th and 9th month of pregnancy it spreads rapidly. It is generally accompanied by rapid pulse, profound weakness, sour mouth, puffy face, slight œdema round the ankles and feet. In severe cases there is breathlessness and palpitation. Heart boundary is increased in these cases. Hæmic murmur is invariably present.

Anæmia accompanying hæmorrhoids and menorrhagia.—Amongst the cases treated for anæmia here a fairly large number was found to have hæmorrhoids to attract attention. For years these patients went on bleeding without taking any proper treatment. Amongst these internal hæmorrhoid cases were many. These patients came to the outdoor with complaints of weakness, giddiness, loss of appetite. (Only an examination as a routine for piles was found to have it too.) 80% of these were from amongst the males. Similarly amongst the female patients we find secondary anæmia associated with long standing complaints of menorrhagia.

Anæmia associated with intestinal worms.— In many cases of anæmia in our routine examination of stools we found the presence of ova of hookworm and roundworm. Blood examination of these cases revealed marked decrease in hæmoglobin percentage. In advanced cases it came down to 40 to 30%. The relative decrease in the number of red blood cells per cumm. was less. The colour index amongst them on an average used to be from ·5 to ·7. Differential count showed marked eosinophilia.

Nutritional anæmia of infants.—This is widely spread amongst the children. This is due to deficiency in diet of iron, copper. The iron deficiency anæmia in infancy and childhood may according to KRACKE and PLATT also be due to prematurity, celaic syndrome, diarrhœa and intestinal parasites.

The clinical picture amongst these is difficult to define accurately owing to the frequent prevalence of inter current disease like malaria. A sore tongue and mouth and other symptoms referable to the anæmia such as palpitation, breathlessness etc. are common. In these cases subacute combined degeneration is never seen. In a few of these cases fever, vomiting, diarrhœa and enlarged liver and spleen are present.

The treatment of these cases depend on the adoption of a well balanced diet rich in vitamins specially those containing vitamin B complex.

Anæmia in nephritis.—In almost 80% of the cases of nephritis I noticed anæmia. It develops towards the later part of the disease and this is seen in subacute and chronic forms. In these cases primary cause of anæmia is to be removed first and then treated with Iron-Liver therapy. In very severe cases transfusion of blood is essential to save the patient.

Anæmia associated with sprue.—Anæmia is in a majority of cases associated with sprue. In long standing cases it develops a pernicious form. It is commonly found in persons above 40. Anæmia here is almost invariably megalocytic in type. Colour index is high. Blood picture shows numerous megalocytes associated with anisocytosis and polychromasia and basophilic stippling and occasional normoblast. Hypochlorhydria or achlorhydria is generally present in these cases.

Pernicious anæmia.—In this case the approach of the disease is very slow and for a fairly long time patient never cares to consult the physician. These patients are very pale, flabby, eyes shining—pulse soft. These patients are easily exhausted, breathlessness and faintness are common complaints. There is complete loss of appetite. Memory becomes impaired in extreme cases. Patients cannot even sit in their bed. Along with these they have glossitis, achlorhydria and dyspepsia.

Nervous symptoms were found in a very small percentage of these cases. Blood picture showed megalocytosis; colour index invariably found above 1. There used to be marked poikilocytosis and polychromatophilia.

Chlorosis. It is mostly seen in unmarried girls at puberty though not extinct in males. In this part of the country it is very uncommon. Complexion is pale, sclerotic blue. Eyes are bright. The commonest compliants of these patients are tiredness, amenorrhœa, constipation, shortness of breath, giddiness, faintness, palpitation and swelling of feet.

Pulse is rapid, soft and full. Hæmic murmur may be present. Flatulence and dyspepsia are also at times present.

Splenic anæmia.—Very rare this side. In the survey of the anæmia cases treated in this hospital for the last five years, not one case of this sort was detected. It is more frequently met with in the Northern and Eastern India and is more common amongst the males.

In almost all cases with cirrhosis of the liver there was presence of anæmia.

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My Experience in Ophthalmology*

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DURING the career as a medical student I had learnt that hypermetropia and myopia, with or without astigmatism, were permanent conditions in the eye, hypermetropia being congenital and myopia being acquired; and persons suffering from errors of refractions could be helped only by suitable glasses. At that time I myself was suffering from hypermetropic astigmatism and my professors were kind enough to prescribe glasses which were really a great help to relieve my headache and eye strain in reading.

After completing the medical course I started an eye hospital where I was prescribing glasses to all my patients suffering from slightest error of refraction or complaining of headache and strain. Even the young children were fitted with glasses. Cases needing operation were usually operated. I observed that most of the cases to whom glasses were first prescribed needed higher power of glasses after some time. The errors of refraction went on increasing in many students in spite of constant use of glasses. I

* Specially contributed to THE ANTISEPTIC.

also observed that some cases of error of refraction recovered spontaneously or changed from one form of error of refraction to another. The axis in astigmatic cases changed frequently. I found myself incapable to treat successfully cases suffering from diseases of the optic nerve, retina and choroid and all modern treatments by injections and medicines were decidedly a failure. The dull and anxious looking eyes after long use of glasses could not be given healthy expression. I felt ashamed in treating the cases of squint and amblyopia. It was a failure to improve glaucoma cases by operation. Cataract operation was the only tool with me on which I had some confidence and which was making me popular.

I think every ophthalmologist observes the above facts but it has long been the custom to ignore these troublesome facts. I used to devote some thoughtful hours on the following points:

(1) If errors of refraction are permanent conditions why do some cases recover without any specific treatment or why does one form of error change into another form or why should the power of glasses increase so frequently. Why should hypermetropia increase in certain hypermetropic patients in old age when the lens is quite hard.

(2) Why is there a great difference in the prescription of glasses to the same patient by different eye specialists; and why does the axis change so frequently in astigmatic cases?

(3) The eye is one of the sensory organs and performs its function like other sensory organs without effort on the part of the subject. Other sensory organs except the eye do not show senile changes except in some particular cases, then why should the eyes become presbyopic in old age? The crystalline lens is said to become hard in old age so as not to allow any accommodation at the near point. I found some cases not showing any signs of presbyopia even at the age of fifty or sixty, while some cases began to show presbyopic signs even at the age of thirty. Some cases who were actually presbyopic and were using glasses showed remarkable change in the improvement of their vision simply by resting the eyes. These facts puzzled my previous knowledge of ophthalmology to believe that presbyopia was due to senile change in the lens.

(4) When the lens has been removed for cataract the patient usually appears to lose his power of accommodation, and he has to use two pairs of glasses, one for distance and the other stronger one for reading. I observed that a minority of these cases, however, after they became accustomed to the new conditions, became able to see at the near point without any change in their distant glasses. A number of such cases of apparent change of focus in the lensless eye has been reported by competent observers. This suggests that the lens should not be the factor in accommodation.

(5) If syphilis is usually the cause of the diseases of the optic nerve, retina and choroid, then why is it that the anti-syphilitic treatment a failure even in the prevention of the disease.

After four years of my practice I happened to see a book 'Perfect Sight Without Glasses' by Dr. BATES. The first reaction to the title of this book was 'ridiculous,' glasses were the only means which could bring good vision to the sufferers; but there was inner feeling which suggested that

I should study this book to know something more. I followed this suggestion and found a very reasonable explanation with various experiments, of the causes and treatment of errors of refraction and of various other diseases of the inside of the eyeball. I could solve all the problems which were coming before me. Readers of the ANTISEPTIC have already read my articles about Dr. Bates' discoveries.

Though my knowledge about Dr. Bates' methods was very imperfect at that stage. I put myself under my treatment according to the methods explained in Dr. Bates' book and I was cured in about a month's time. The next interesting case was of a boy named Brijmohan who was blind with his left eye since birth. It was a case of amblyopia. While the examination of Brijoo's eyes was in progress, Brijoo's uncle was sorry because he was told by the doctors that he would always have to wear glasses to save the right eye; that nothing more could be done for the left eye. After examining the eyes I asked Brijoo to practise PALMING. By palming is meant to close the eyes and cover them with palms of the hands and shut out all the light; then to think of something pleasant or familiar. When I asked Brijmohan what he remembered while palming, he said, "I can remember very well the black beard of my teacher." At once a roar of laughter came out from all present at that time. After palming for five minutes he opened the left eye and was able to see the big letter of the Snellen Test Card but as soon as the letter began to become dim he closed the eyes and palmed again. By repetition and with some modifications Brijoo's vision began to improve and in one and a half months his vision of the left eye was 6 9 and could read the fine letters at the near point.

I used to experience as if some force was compelling me to adopt Dr. Bates' methods seriously. I was given opportunities to develop my knowledge. One day it so happened that a boy blind with his right eye since birth came to the clinic for treatment. I put him also on palming. I found that his power of imagination was perfect. His improvement was very rapid and he gained normal vision both for distance and near in two hours. This case was a great surprise and encouragement to me.

Later on I quite successfully treated many cases suffering from errors of refraction, diseases of the optic nerve, retina and choroid. Then there was an impulse to study Ayurvedic side about Ophthalmology, and then find out and evolve the curative aspect of all the systems. 'SUSHURUTTA is the first Ophthalmologist and I studied the English translation of Sushurutta's Ophthalmology. I found that there was truth in the Ayurvedic medicines for the treatment of eye diseases but they were not sufficient for a satisfactory cure in most of the eye diseases.

Gradually I evolved a system of practical treatment based on all the old systems as well as the methods of DR. BATES. I find that all the methods of the treatment—medicines, glasses, operations, relaxation etc., have their value. but one has to discriminate what will be helpful in a particular case. Relaxation treatment as prescribed by DR. BATES is unavoidable and indispensable in all cases. Even if it is necessary to perform operations or to prescribe glasses or medicine it is very helpful to prescribe the methods of relaxation along with them. Without giving relaxation no constructive work can be done and the condition of the patients will become worse.

The efficacy of Dr. Bates' relaxation methods is so great that one can successfully treat cases of eye troubles without having the diagnosis even. At times I was unable to diagnose the disease in some cases but I found myself quite successful in treating such cases by intelligently following the relaxation methods. The reason is that whenever a patient complains of pain, headache, defective vision etc., it indicates mental and eye strain. Treatment which can relieve this strain will surely prove useful, at times miraculous. Sometime back an elderly lady gave a history of constant pain and fatigue in the eyes, inability to sleep at night, presence of redness and swelling in the eyes in the mornings. Every doctor who examined her admitted that he did not know what was wrong. Blindness was expected by some doctors in the course of a few years. I told the lady that I did not know what was wrong with her eyes, but I believed that she could be cured even without any diagnosis being made or without discovering the cause of her troubles. Then I said to the lady: "Look at a large letter of the Snellen Test Card and note its blackness. Then cover your eyes with the palms of your hands, shutting out all the light, and remember the blackness of the letter until you saw everything black." She started to do as I suggested and after a few minutes she told me that she saw everything perfectly black and she felt a great relief to her eye troubles. In a few days by frequent palming and swinging she got complete relief from all the discomforts.

The details of all the relaxation methods have been fully explained in my book 'Mind and Vision' but a short summary of them has been included in the new book 'Eye Troubles in Old Age' in which I have summarised the synthesis of all the methods along with case reports and the stories from the clinic. I hope my new book 'Eye Troubles in Old Age' will prove a very helpful contribution to the medical profession.

Acne Vulgaris*

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ACNE Vulgaris is a common skin disease resulting from an overgrowth of sebaceous glands and an excessive output of sebum.

Etiology.—In the production of this disease there are two main factors to be looked into. They are predisposing and determining causes. The most important predisposing causes are age, sex, and septic foci in the alimentary tract.

Age.—The disease appears about the time of puberty and it may continue with varying intensity to the age of 25—30. Then it may subside to an extent.

Sex.—Both the sexes are affected, more common in young males than girls.

Septic foci in the alimentary tract.—Decayed teeth and as a result of that septic conditions of the mouth with its several complications result. Dyspepsia is the usual accompaniment of such conditions.

* Specially contributed to THE ANTISEPTIC.

The determining cause is the seborrhœic state of the skin. The skin is oily to touch. Some authorities believe that certain fungi, bacilli and cocci are the normal habitants of the skin. The most important of these are pityrosporon mallessez, acne bacilli and staphylococcus albus. On healthy skin these do not produce any abnormal conditions but if the conditions become favourable they increase in number and produce reactions in the skin. The important factor in producing these activities is seborrhœa. At puberty the sebaceous glands become more active, the acne bacilli may proliferate and so acne vulgaris results. The metabolism plays an important part in the development of the seborrhœic state. The carbohydrates and fat metabolisms are commonly affected.

All people do not suffer from seborrhœic state though there is an excessive secretion of sebum. If there is a free exit of the sebum through sebaceous ducts then acne does not develop. Acne results due to obstruction. This obstruction is brought about by black heads (Comedones). The black colour is due to the oxidation of sulphur in the sebum to sulphide. These comedones are formed due to hypersecretion of sebum and hyperkeratosis of the mouth of lanugo hair follicle. The comedo consists of three parts, an outer and with horn cells and dried sebum, a centre with bacilli and cocci and finally an inner end mainly with sebum.

Sites of predilection.—The common areas where the disease affects are the forehead, temples, cheeks, chin, chest, back and upper arms. Palmar and plantar surfaces are not affected.

SIGNS AND SYMPTOMS.—Erythematous papules around a comedo on the sites mentioned above usually develop. This condition is styled as (Acne papulosa). Sometimes pustules are also seen (Acne pustulosa). Occasionally hard nodules are formed round the comedo (Acne indurata). When there is inflammation in the nodules they are painful. Repeated attacks of inflammation lead to suppuration. The comedones become big in size and leave atrophic scarring. This is termed Acne conglobata.

When the process of suppuration is repeated the affected skin is generally pitted. Sometimes the scars are grouped together and have the appearance of keloids. Abscess formation is not rare.

DIFFERENTIAL DIAGNOSIS.—The common conditions which may be mistaken for acne vulgaris are acne rosacea, bromide and iodide rashes, eruptions of secondary syphilis and finally acne like tuberculides.

In acne rosacea no black heads are seen. The disease usually begins after the age of 25-30. Acne vulgaris begins in or about the time of puberty. Acne vulgaris tends to affect the temples, cheeks, chin and sides of the forehead whereas rosacea affects the nose, the centre areas of the forehead and cheeks. Rosacea becomes worse with ultra-violet treatment whereas vulgaris improves with the treatment.

Bromide and Iodide rashes.—These rashes are mistaken for acne vulgaris. The rashes are large in size and appear on the face, shoulders and legs. (In majority of the cases the entire skin is affected). No comedones are seen. Lastly there will be a history of taking the drugs.

Eruptions of secondary syphilis.—Here again no black heads are seen. The whole body is affected. The constitutional signs and symptoms are severe. Finally blood tests will prove the disease.

Acne like tuberculides.—The condition is supposed to be tubercular in origin. The lesions are commonly seen on the extensor aspects of the limbs. No black heads are seen. Does not respond to acne vulgaris treatment.

DIAGNOSIS.—This is easy. Search for the comedones. The lesions are found where there are sebaceous glands. Majority of the cases have seborrhœa of the scalp (Pityriasis capitis).

Treatment.—The treatment is both general and local.

GENERAL.—The aim is to improve the general health of the patient. Avoid sedentary life. Oral sepsis, if any, should be removed. Metabolic disturbances should be attended to and corrected. Seborrhœa capitis if found should be treated. (Clip the hairs of the scalp short. Daily shampoo the scalp with plenty of soap and water and then apply 1-2% Sulphur cum Salicylas ointment at nights and wash off in the mornings. Repeat this process for a week).

LOCAL.—The local treatment should lessen the excessive secretion of sebum, must remove the comedones and finally if there is suppurative process it should be brought to an end or controlled. In the army I have found good results with Sulphur in some forms. Sulphur and its preparations have a remarkable power of reducing the excessive secretion of sebum. The following two lotions are found to be very effective:

1. ℞ Sulphur Precipitate ... grs. x
   Lotio. Calamina ... ʒ i
2. Sulph Potash ... ʒ i
   Zinc Sulph ... ʒ i
   Aqua ad ... ʒ iv

After thorough washing with soap and water apply one of the above. Allow the lotion to dry on the parts affected. After drying the result will be a powder. The powder should be rubbed in with hand. Repeat this process three or four times a day. Continue this treatment for about ten days. The skin on the affected areas begins to crack and peel off. Then apply the following cream twice a day:

℞ Zinc Oxide ... grs. xv
Sulphur Precip ... grs. x
Acid Salicylas ... grs. xv
Ichthyol ... ♏ xx
Resorcin ... grs. x
Cold Cream ad ... ʒ i

Resorcin has a selective action on the epithelial cells when there is para and dyskeratosis. (Resorcin in a lotion or ointment should not be applied to the scalp or other hairy parts. The hairs will be discoloured if there is soap and alkalies). Instead of the cream the undermentioned ointment can also be used.

℞ Sulph Percipitate
Acid Salicylic ... grs. xv
Paraffin Molle ... grs. xx
... ʒ i

After washing with soap and water apply the ointment both morning and evening. Repeat this for a week. Then apply plain Calamine lotion for three or four days.

Removal of the comedones.—By using the lotions mentioned above some of the comedones are removed. The remaining ones must be removed by mechanical means. This is done by a comedo extractor. The process is easy and painless if there is no inflammation round the black heads. It is advisable to use plenty of soap lather and water before we apply extractors.

Treatment of suppurative process.—The application of Lotio Hydrarg Perchloride twice a day for three or four days brings the mild cases to an end, the strength of the lotion being 1 in 2000. Majority of the advanced cases responded well to Sulphathiozole treatment. The course lasts for four days. Two tablets are given every four hours with usual precautions. Mixed acne and Staphylococcal vaccines gave poor results.

Treatment of acne by X-rays and Ultra-violet.—X-rays 1/4-1/3 pastille dose should be administered once a week for about five weeks with protections to eyes, eyebrows and hairs of the scalp. X-rays are particularly useful in chronic cases and cause certain amount of atrophy of the sebaceous glands and hence diminish seborrhœa.

Ultra-violet treatment gives good results in all forms particularly in pustular acne. The radiation causes desquamation of the horny layer of the epidermis.

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Collapse Therapy*

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THE treatment of tuberculosis, as a matter of fact, has been revolutionised greatly by the advent of certain measures known collectively as collapse therapy.

The aim of the therapy is to put the patient in general as well as local rest, as we know that in the lungs as in other structures healing is favoured if sustained physiological rest can be secured. The value of the collapse therapy is definitely established and its use should not be withheld if proper criteria for its application are present.

By this therapy—

(*a*) Lung is immobilised.

(*b*) Toxæmia is reduced.

(*c*) Healing is promoted by fibrosis due to sluggish circulation. In other words, we can say that specific effect of all forms of collapse therapy is reduction of lung volume regionally or generally, with resulting diminution of tension (atmospheric and mechanical), so that the reparative processes may not be inhibited; if already present can proceed unhampered.

The methods used are:

I. Artificial Pneumothorax (A.P.)

II. Intrapleural division of adhesions *i.e.* (cautery), internal pneumolysis.

* Specially contributed to THE ANTISEPTIC.

III. Phrenicectomy.
IV. Pneumoperitoneum (P.P.)
V. Extrapleural thoracoplasty (local or extensive resection of ribs.)
VI. Direct drainage of the cavity.

In the past certain other operations such as oleothorax, scalenectomy, extrapleural pneumothorax, apicolysis with paraffiin plombage were used but now they have become obsolete.

I. **Artificial pneumothorax**.—Artificial pneumothorax is the simplest method of producing lung collapse and more collapse is attained by this method, provided adhesions between parietal and visceral pleura are not present. In many cases it is only by trial that the efficiency of the method can be tested.

Indications:—1. Unilateral disease with cavitation.

2. Unilateral disease without cavitation, when the temperature does not come down to normal after a period of rest of 3 to 4 weeks.

3. Unilateral disease without cavitation when the temperature comes down to normal but shoots up again on walking.

4. Cases which show slow progress, the temperature is suitable but are toxæmic.

5. Acute broncho-pneumonic tuberculosis in adolescence and adults.

6. Bilateral disease when one of the sides shows a small quiescent lesion.

7. Bilateral cases, in which we start A.P. in the more advanced lung and control it, and then give A.P. to the other lung (selective collapse *i.e.* alternate A.P.)

8. Successfully, used in intractable hæmoptysis, only when the side which is bleeding is definitely known.

9. Pleurisy with effusion when there is active lesion present in the lungs. Here we replace the fluid with the air.

10. Non-tubercular indications:—

(*a*) Interlobar empyema.

(*b*) Pulmonary abscess.

Provided both of these are deep seated and bronchus is in communication with both of them.

(*c*) Has been used in early cases of bronchiectasis but it is only of theoretical importance.

Contra-indications:—1. Advanced bilateral disease.

2. Advanced heart and kidney diseases.
3. Advanced emphysema.
4. Low vitality (vital capacity of lung being decreased).
5. Pleural adhesions.
6. Advanced extra-pulmonary tuberculosis.

(*N.B.*—Laryngeal tuberculosis is not a contraindication).

Aim of A.P. is selective collapse which is shown by:—(*a*) Disappearance of tubercular bacilli in sputum; and (*b*) relief of the general symptoms.

But apart from this aim there may occur:—

(*a*) Contra-selective collapse.
(*b*) Partial collapse. } Not our aim.

By contra-selective collapse we mean that diseased area is keeping aloof but the normal lung collapses. Nothing worse than this can happen. If you go on pushing air, the lung will rupture and result will be spontaneous pneumothorax (tension pneumothorax *i.e.* whole lung is pushed into a bud; mediastinal shift is there; other lung also gets collapsed).

Partial collapse:—It means that the diseased lung is not properly collapsing due to adhesions.

Technique of A.P.—The technique of induction follows the line of paracentesis in general and is carried out under local anæsthesia (2% Novocaine), particular care being taken to infiltrate the sensitive pleura. The fourth intercostal space in the mid-axillary or sixth or seventh in the scapular line are favourite sites. A special pattern of needles is employed.

Amount of air and refills:—A successful entry into the space is registered by respiratory oscillations in the manometer (normally —10 to —5 mm. of water). In no circumstances should the air be allowed to enter until equivocal oscillations are obtained. Continued failure to procure such oscillations is an indication to puncture elsewhere. When from the manometer reading it is certain that the needle is at the right place, 100 to 150 cc. of the air is allowed to enter into the pleural sac (100 cc. in women, 150 cc. in men), the intrapleural pressure should remain negative.

Refills:—If the induction has been successful then give:—

1st refill—after one day's rest—250 c.c.

2nd refill—after two day's rest—350 c.c.

Third refill—after three day's rest—450 c.c.

Example:—Say—primary fill on 1st July, 1947 — 150 c.c.

1st refill will be on 3rd July 1947 — 250 c.c.

2nd refill ,, ,, on 6th July ,, — 350 c.c.

3rd refill ,, ,, ,, 10th July ,, — 450 c.c.

Then screen the patient and see how much collapse has occurred. Thereafter the refills are continued at short but gradually lengthening intervals *e.g.* intervals between the injections progressively 1, 2, 4 weeks; volume of the air about 500 c.c. at each injection. It is usually about a month before the optimum collapse is established. Then the intervals between refillings varies with each patient according to the rate at which the air is absorbed. The X-ray appearances are the most reliable guide in arriving at a decision. In an average case refilling at 10 to 24 days intervals is necessary at first but as the rate of absorption decreases that interval can often be extended to three weeks or a month or six weeks.

Practical difficulties in induction:—1. Good negative swings but becomes stationary. It means that you are in the pleural space, but that either your needle has become blocked or that your needle is against the lung. In such a case, pass the stylit and then you should note the swing; if still no result, then withdraw needle a little and you will find the swing.

2. The manometer shows slight negative pressure during inspiration but positive during expiration, it means that the needle has entered the lung.

3. Positive pressure greatly increased but is slightly negative during inspiration, it means you are in a cavity.

4. Positive throughout inspiration and expiration and it is greatly increasing, it means you are in the blood vessel.

5. Very slow swing, although negative both in inspiration and expiration, it means that you are in the pleural space surrounded by adhesions.

Results of A.P.—Results are very successful in selected cases. Continue the refills for three years. Then slowly allow the lung to expand. It may take another six months. For these the patient is kept under clinical and radiological care all the time.

Mishaps and complications of A.P.—In order of frequency and importance they are as follows:—(*a*) Pleural effusion.—It occurs in 60 to 70% of cases in one stage or the other; (*b*) pain; (*c*) obliterative pleurisy; (*d*) surgical emphysema and interstitial emphysema; (*e*) spontaneous pneumothorax; (*f*) dyspnœa; (*g*) displacement of the mediastinum to the opposite side; (*h*) pneumoperitoneum; (*i*) pleural hernia; (*j*) penetration of the lung; (*k*) air embolism; (*l*) pleural shock; (*m*) empyema and pyopneumothorax; and (*n*) injury to the heart and blood vessels.

II. **Intrapleural division of adhesions *i.e.* internal pneumolysis.**—Adhesions may be unimportant but often they present relaxation of the diseased parts of the lungs or closure of the cavities. In such cases the division of adhesions should be considered. This is a most valuable supplementary method in pneumothorax works. Serial radiograms afford most help in recognising the position and extent of the adhesions.

NOTE:—Even gross adhesions may not be obvious radiographically and, even when portrayed, their number cannot be gauged with accuracy. Therefore the most exact method of deciding the possibility of operation is the direct examination of pneumothorax cavity by thoracoscope.

Division of the adhesions is performed with electric cautery with the aid of an instrument known as thoracoscope. It has been observed that there is hardly any upset in this operation in careful hands.

III. **Phrenicectomy.**—The temporary operation (phrenic crushing) as compared with permanent operation (phrenic evulsion) is now frequently performed. In our sanatorium at Amritsar, all cases were subjected to phrenic crushing. The operation is performed under local anæsthesia without much discomfort and untoward results.

Effects:—The phrenic paralysis assists in the elevation of the diaphragm with consequent reduction of the volume of the lung, the combination of which favours healing throughout the lung, more especially those parts already undergoing fibrosis. The apical regions may be benefited but to a lesser extent than the lower zones.

Indications:—1. Preliminary to thoracoplasty.

2. In the basic lesions of tubercular lung.

3. To assist A.P.

4. Sometimes indicated at the completion of the treatment with A.P., so that the healed lung may not be exposed to undue strain and re-expand.

5. When A.P. fails.

6. To relieve troublesome symptoms as dry spasmodic cough due to irritation of the diaphragm from the pull of the adherent lung.

IV. **Pneumo-peritoneum.**—*Indications*:—1. Bilateral pulmonary lesions in the bases.

2. After phrenic paralysis.

3. In cases of abdominal tuberculosis.

The procedure of P. P. consists in injection of air at intervals into peritoneal cavity through a pneumothorax refill needle.

Fills:—First fill about 500 c.c. After a week's interval give 800 c.c. to 900 c.c., then after 8 days' interval give 900 to 1000 c.c., then after 9 days' interval give 1500 c.c. and so on. The duration of the pneumoperitoneum depends upon the progress of the case, but need not be protracted as pneumothorax especially as it can be readily reestablished.

V. **Thoracoplasty.**—This means a surgical collapse of the lung.

Indications:—1. When the collapse is impossible with A.P., especially in unilateral cases.

2. When there is tubercular empyema.

3. Specially valuable when there are multiple ring walled cavities, provided there is no active or uncontrolled disease in the other lung, and provided the circulatory system is not seriously impaired.

Contra-indications:—1. Rapid change of physical signs in the other lung.

2. Advanced bilateral disease.

3. Advanced extrapulmonary tuberculosis.

4. Advanced emphysema.

Advantages:—1. It is of definite value in selective cases.

2. Lung cannot re-expand.

But it is a major operation and it cannot be undertaken in nervous cases.

VI. **Direct drainage of the cavity.**—This procedure has recently been employed. The drainage is secured by suction through a catheter inserted by means of a trochar and cannula under the guidance of flouroscopic screen (Monaldis technique). The cavity is more likely to close if its walls are still retractile.

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Spermatorrhœa*

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Madras.

Definition.—Spermatorrhœa is a diseased condition of the sexual system in which there occurs frequent involuntary flow of semen, due to a weakness of its sympathetic control.

Physiology.—Semen is an albuminous yellowish white fluid consisting of solid sperms and fluid secretions of the prostate, seminal vesicles and urethral glands. It has an odour like that of the pulp of the tender cocoanuts, it is fairly alkaline, viscous immediately after ejaculation, but turns watery on standing. It begins to be manufactured at the age of puberty, normally ranging from 13 to 18 years of age, various factors influencing its early or late production.

The sperms are collected in the epididymis and then sent on to the seminal vesicles where they are stored along with other secretions, until ejaculation or emission takes place. Some authorities hold that the seminal vesicles do not store sperms, but they collect only the fluid portion of the semen and that the sperms are stored in the epididymis and sent on to the urethral passage only during ejaculation. We have here examined microscopically the ejaculated semen of several people, regularly for a few days after double-sided vasectomy operation, and are in a position to say definitely that living sperms are found in such specimens even up to the fifth ejaculation after the operation. These sperms could not have been transmitted from the epididymis during the ejaculation, as the continuity of the vas had been severed. Hence it can only be surmised that those were some of the sperms stored in the seminal vesicles even before the operation.

The capacity of the seminal vesicles being limited, it is but natural that they discharge their contents automatically when full, either mechanically due to pressure exerted by the passing of urine or fæces; or involuntarily during sleep, just as a sleeping child wets its bed when the bladder is full. This involuntary evacuation of the seminal vesicles is popularly called *emission* and technically termed spermatorrhœa. Physiologically this occurs in a man about two to four times a month, unless his semen is let out periodically by natural or unnatural means. But if it occurs more frequently, the causes are to be investigated.

Pathology.—Secretion of any gland may be accelerated by some particular means, peculiar to itself. When sexual sense is excited all the glands pertaining to the sexual system begin to work, just as the salivary glands do at the sight or smell of a delicious food material. Preoccupation of the young and growing minds on sex matters stimulates sex impulses and increases the activity of the spermatogenetic cells in the testicles and the cells of the accessory sex glands. Such stimulation might take place reflexly by exciting the brain: (*a*) Through functions of sight of nude figures or pictures, or by reading lascivious literature; (*b*) through functions of hearing, by attending to vulgar stories, ribald jokes or obscene songs; (*c*) through functions of touch sensation, by coming in contact with females of flirting tendency or of ill-repute; and (*d*) through local excitation by masturbation or sexual excess.

* Specially contributed to THE ANTISEPTIC.

In two ways spermatorrhœa might affect the health of a person. Firstly, increased production of the semen consumes an excess of the vital principles of the blood. Secondly, when the spermatogenetic cells of the testes get more and more active in the increased production of the sperms, the interstitial cells grow weak, atrophy and generate less of testicular hormone, which in itself is responsible for the virile qualities of man. Both these causes deteriorate the general health of the person by reducing the quality of the blood and minimising the stimulus to the growth of the different tissues of the body.

Diagnosis.—Frequency of recurrence ought not to be the only criterion under which a case is to be dubbed as pathological. One might say that he passes semen every time he urinates or defecates. Another might bring to our notice that he passes a white discharge per urethra every morning he gets up. A third might complain that he has emission closely following every complete act of sexual intercourse. A partially cured gonorrhœa patient might report that he is constantly passing semen. The correct test for spermatorrhœa is *microscopical examination of semen for sperms.* If sperms are absent in the discharge, it may be normal secretions of the prostate, Cowper's glands or urethral glands; or it may be due to a chronic inflammation anywhere in that region, caused by gonorrhœa, tuberculosis, stones or some tumour. But in case the discharge contains sperms, we have to inquire: (*a*) if the discharge occurs after a dream; (*b*) if erection and orgasm accompany; (*c*) if he wakes up soon after the mishap; (*d*) if it is accompanied by a dream, does it relate to particular persons; (*e*) if it gives him complete relief of tension or does it make him completely exhausted; and (*f*) if it occurs more than five times a month.

An emission occurring now and then after a dream accompanied by erection and orgasm, is normal, if it gives him relief of tension. On the other hand, if it takes place during sleep without his knowing, recurring off and on, leaving him weak and exhausted, the causes are to be investigated, the matter taken seriously and handled carefully.

Treatment.—Many suggestions are given by various authors and "Drug-selling-specialists" for the cure of spermatorrhœa. In as much as a secretion once formed cannot be expected to be absorbed back by the same cells especially when there is a passage of outlet for the same, it is ridiculous to believe that reducing the diet, sleeping on one's side, lying on hard bed, using pollution-rings or drugs, would cure all forms of spermatorrhœa. As we do in leucorrhœa or otorrhœa, the treatment should be to attack the root cause in the particular person. The excessive production of the semen must be stopped by limiting the time and opportunity for him to brood over sex matters. The following points might help one who really cares for it :—

(1) A prayerful life reduces sex excitation.

(2) Plenty of work and diversion to mental and physical exercises spares him less time.

(3) Avoid company of people of lude and voluptuous habits who might excite his sense of sex.

(4) Refrain from attending the usual cinemas of to-day, most of which excite the sexual feelings in the young.

(5) Read good biographies, short stories, and books on religion, politics or science whichever is special to him and not love-stories, drab tales and of the sex series.

Innumerable medicines have been suggested. For the mental satisfaction of the patient, bromides, strychnine, quinine, arsenic, ergot, hamamelis, etc., may be prescribed and some of them may produce a tonic influence or depressant action. Homœopaths recommend China and Gelsemium. Supporters of biochemical remedies claim that their Aphrotone and Phosphaura give complete relief. But with all respect to those who sponsor these, I do not believe that any of them would give any permanent relief to the sufferer. Sri VIASKARA MOOSAD, the most reputed Ayurvedic physician in Travancore, once informed the writer that he prescribes arrowroot powder for spermatorrhœa. He could not explain how it acted, but he affirmed that in many of his cases it worked well. It is worth investigating.

Recent investigations.—Prof. A. T. CAMERON has made out that Chorionic Gonadotrophin injected into male animals stimulates an increase in the size and number of the interstitial cells of the testes. NEWTON in his Physiology has marshalled in favour of the production of this hormone by the placenta and not by the anterior pituitary. Reynold's Physiology suggests that Progesterone produces secretory changes in the endometrium and augments its blood supply, and by some mechanism still unknown, causes deposition of glycogen, (for nutritive purposes), especially in the most superficial glands.

These findings led me to believe that placental and luteal hormones might give a stimulus to the cells in the testes and seminal passages, and guided me on to try these in cases of weakened sexual systems of young men with advanced spermatorrhœa. The marked improvement I noted in a few cases with vasectomy operation, by which the interstitial cells of the testes are supposed to be made more active, is another reason that induced me to try Progesterone. The case-notes of a few may be summarised here :

Case 1. P. J., aged 22, unmarried, came here on 21-1-1946, complaining of spermatorrhœa almost every day, followed by exhaustion and extreme depression, 5' 5" in height, he weighed only 94 lbs. He was given Testosterone Propionate and Progesterone, 5 mg. each, alternately on alternate days, intramuscularly. Six injections of each almost cured him. Emissions were reduced to once a week, weight increased to 98 lbs. and he looked cheerful and happy. Recently, I came to know that he got married and is living happily with an addition of a healthy baby to the family.

Case 2. D. L., aged 23, complained of anæmia, severe mental depression, weakness and loss of memory power with emissions four to five times a week. Though 6' 1" tall, he weighed only 120 lbs. in February, 1947. A dozen injections of iron and liver, six injections of Testosterone, and six injections of Gonadotrophic Serum, improved his general health very much, but not the number of emissions or the mental depression following it. To my surprise, two injections of Progesterone reduced his emissions to once or twice a week. In October 1947 he weighed 137 lbs. He is still being treated and watched.

Case 3. K, a motor driver, aged 26, was sent to me by one of the doctors in the city. He is diligent and intelligent, but was unable to do work in the mornings, due to emissions at night almost every day, followed by severe prostration. Three injections of Progesterone on alternate days reduced his emissions, and three months later the doctor stepping in to thank me, informed that he was quite fit.

For the cases noted above, I was using Ciba's Perandran and Organon's Neohombreol for Testosterone, Organon's Gestyl and Pregnyl for Gonadotrophic Serum, and Ciba's Leutocyclin for Progesterone.

I would request as many doctors as possible to investigate in this direction, and report their results, so that an analysis of a large number of cases may be worked out for our future guidance.

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Granulocytopenia*

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and
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Physician.

Introduction.—This term denotes a hæmatological finding in the course of a severe febrile illness, characterised by marked reduction, sometimes disappearance of the granulocytes from the peripheral blood and the bone marrow, with or without necrotic ulceration of mucous membranes. It is either Primary *i.e.*, Idiopathic or Secondary. After a short review on the subject, two case reports are given below. One of them recovered after adequate therapeutic measures but the other one did not survive.

Granulocytopenia can be produced by any toxæmic process, which, either suppresses or completely paralyses granulopœisis in the bone marrow. The toxin may either prevent maturation of myelocytes to granulocytes or induce complete aplasia of the bone marrow. The leucocyte count usually ranges between 400 to 2500 cmm., the granulocytes being as low as 1 or 2% sometimes and the main cells in the picture being lymphocytes to the extent of 60% or more. Leucopenia with granulopenia is also seen in a leukemic leukemia, kala-azar, overwhelming sepsis, diphtheria, aplastic anæmia and very rarely in pernicious anæmia.

The leucocytes are derived from the maturation of myelocytes in the bone marrow. For this purpose Nucleic Acid is presumed to be the necessary maturating agent. It is present in all the body tissue cells. The senile granulocytes, which perish every day, supply the required amount of nucleic acid : but when their number is greatly reduced in granulopenia and certain other toxic conditions, the natural source is exhausted and an arrest of development, either at the myeloblastic or the myelocytic stage, occurs. The immature cells being extravascular and not amœboid are not able to gain entry into the blood stream. Continued absence of leucocytes in the peripheral blood stream breaks down the defence mechanism of the individual and renders him susceptible to invasion by bacteria, resulting sometimes in ulceronecrotic lesions of the mucous membranes. Nucleic Acid deficiency alone does not produce granulopenia. A lowered blood glutathione level has also been observed in some cases, that have

* Specially contributed to THE ANTISEPTIC.

responded very well to liver therapy, as liver is rich in glutathione. The high blood glutathione level in leukemia supports this view. The lack of maturation factor may either arrest the division of the reticulo-endothelial cells resulting in aplasia (pancytopenia), or affect the division at the myeloblastic or the myelocytic level. The bone marrow biopsy shows either an aplastic picture of a regenerative one full of myeloblasts and myelocytes with conspicuous absence of mature polymorphs. Erythropœisis is little affected in the non-aplastic type. In the secondary type of granulocytopenia the suppression of maturation is due to toxic effect on the marrow by bacteria *e.g.* typhoid, protozoa *e.g.* kala-azar, or a chemical in which case the individual may have idiosyncracy to the drug.

Case I. R. K. J., age 22 years. Admitted 20-2-'47.

Complaints :—Asthenia, anorexia, lassitude, and yellow colouration of eyes.

Clinical examination :—Nil particular except yellow sclerotics and a tender liver which was just palpable.

Urine :—No bile salts, pigments, urobilinogen or mepacrine.

Van den Bergh :—Direct negative. Indirect less than 0·5 mgms. bilirubin % icteric index 4.

Three weeks after admission into hospital, the patient developed fever with rigors and maintained a steady temperature of 103 to 104 degrees till 20-3-'47. The tongue was dry, abdomen distended, spleen just palpable and tender. The sclerotics were yellow. Two bright patches of ecchymosis were seen over the temporal half of the left bulbar conjunctiva. Repeated blood smears showed no malarial parasites.

18-3-'47. Urine bile salts nil, bilirubin nil, urobilinogen—immediate positive reaction (patient constipated). Culture sterile. Van den Bergh direct negative. Indirect less than 0·5 mgms. bilirubin %. Blood culture sterile. Widal : TO nil, AO nil. Weil Felix OX 19, OX K and OX 2 nil. Kahn negative. R.B.Cs. 3·4 millions, the cells were normocytic and normochromic. Hæmoglobin 70%. Fragility of the R.B.Cs. presented a hyperbolic curve to a slight extent (30% hæmolysis upto 0·6 % NaCl). W.B.Cs. 3200 on 18th, 2200 on 19th and 1800 cmm. on 20th. Blood platelets 51,000 cmm. Aldehyde and Chopra tests negative.

20-3-'47.—Penicillin 40,000 units 3 hourly intramuscularly (total 4MU).

21-3-'47.—Van den Bergh direct negative indirect 0·8 mgms. bilirubin%. E.S.R. 29 mm. first hour; 69 mm. in 2nd hour. Sodium Pentnucleotide 15cc. 4 hourly (total 60 cc.). Further stocks were not available. Conc. liver extract 10 cc. st, 4 cc. twice daily intramuscularly.

29-3-'47.—Skiagram chest N.A.D.

2-4-'47.—Sternal puncture : Leucocyte series : Myelocytes 22%; Metamyelocytes 2% ; Eosin-myelocytes 1% ; polymorphs 12% ; lymphocytes 44%.

Erythrocytic series :—Erythroblasts 9% ; normoblasts 10%. No L.D. bodies or M.Ps. were seen.

4-4-'47.—Sod. Pentnucleotide 20 cc. 4 hourly (total 420 cc.), vitamins B and C intramuscularly.

The patient started feeling better, though the temp. kept swinging till it came down on the 8th and remained normal since. The leucocyte count gradually increased to 2200 on the 3rd, 2800 on the 5th, 3400 on the 7th and 5200 on the 10th. The Guineapig which was inoculated with the urine of the patient on 31-3-'47 was negative to tests for leptospirosis.

13-4-'47.—Urine contained albumin and a few pus cells ; no leptospira.

20-4-'47.—Temp. normal, feeling much better, though extremely asthenic. WBCs 6,000 cmm; polymorphs 58% ; lymphocytes 42%.

Case II. A.Q., age 35 years. Admitted 26-10-'45. *Complaint :*—Fever, ten days duration.

Clinical examination :—General condition toxic. Rose spots over the abdomen. Not anæmic, no icterus, liver and spleen not enlarged ; lungs—scattered rales both bases. Other systems N.A.D. RBCs 2·1 millions; WBCs gradually going down from 1500 to 400. Widal and Weil Felix tests negative. Blood culture sterile. The general condition of the patient was gradually getting worse though routine symptomatic treatment was being given under the existing circumstances. The patient expired on 2-11-'45.

Post mortem :—Well built adult. Not icteric. Maculopapular rash one mm. in diameter was present over the chest and upper half of the abdomen. Head—The vault, membranes and brain showed no naked eye lesion. Lungs—lower lobes less crepitant. No consolidation. Pericardium, myocardium, coronaries, aorta and the valves showed no naked eye lesion.

Mouth, tongue, tonsils, œsophagus, peritoneum, mesentery and the intestines showed no naked eye lesion.

Reticulo-endothelial system :—Glands not enlarged. The spleen was enlarged three times the normal size, slaty blue in colour and soft ; cut surface, the trabeculæ were prominent. The liver was slightly enlarged, cut surface was pale and structure altered. The bone marrow was cherry red in colour.

Myelogram :—Myeloblasts 82% ; premyelocytes 14% ; myelocytes 4%. The absence of mature polymorphs was a striking feature. The red cells presented a normal appearance. No L.D. bodies or M.Ps. were seen in the bone marrow, liver and spleen smears stained with Leishman stain.

REMARKS :—The absence of mature polymorphs and the predominance of myeloblasts in the bone marrow smear illustrate the breakage in the link of maturation of the granular series and strongly favour the diagnosis of idiopathic granulocytopenia of the maturation type. The histological findings confirm the post mortem appearances. The cellularity of the bone marrow was greatly reduced, most of the cells belonging to the lymphocytic or the erythrocytic series. There were few granulocytes, the spleen contained hardly any granulocytes either. The liver presented the appearance of fatty degeneration, going on to necrosis central and midzonal.

DIFFERENTIAL DIAGNOSIS.—We attempted to diagnose differentially the following diseases from granulocytopenia.

The enteric group of fevers and rickettsial fevers by blood cultures and agglutinations : kala azar and leukæmia by serum tests and bone marrow examinations : pyæmia with leukopenia by blood cultures and

absence of metastatic manifestations: quotidian malaria by the absence of parasites in the blood smears. Fever with conjunctival icterus, subconjunctival hæmorrhages and rose spots over the chest with a palpable tender liver, suggestive of infective hepatitis was excluded by the absence of urobilinogen and hyperbilirubinæmia. In R.K.J. acholuric jaundice was excluded by a subnormal reticulocyte count and no increase in the fragility of the red cells. It might be added here that an accurate and easy method of doing a daily check leucocyte differential count is by centrifuging the oxalated blood and making smears from the buffy top layer, that is just in contact with the plasma, where the maximum concentration of leucocytes is obtained.

REMARKS:—Two cases of granulocytopenia have been described above. A.Q. ran a short fatal course of illness. The diagnosis was made on post-mortem examination. They did not show an anæmia corresponding in degree to that of the leucopenia, neither was there a thrombocytopenia. Failure to detect any toxic ætiological factor seems to justify the diagnosis of idiopathic granulocytopenia of maturation type, the maturation in A.Q. having been arrested at the myeloblastic stage and in R.K.J. at the myelocytic stage, as revealed by the regenerative types of myelograms. In support of observations by DR. SEN GUPTA (*I.M.G.*, Jan. '47), that the complication of ulceronecrotic lesions of the mucous membranes is not always seen, we certainly did not notice any lesions in our fatal case A.Q. but R.K.J. during the middle of the course of illness, passed a large dark brown loose stool, which gave positive reaction for blood.

We are indebted to Col. A. M. CHAUDHURI for all the help and encouragement he has given us and to Lt. Col. E. JONES and Lt. Col. E. J. HARRIES for help in reviewing this article.

We are thankful to D.M.S. (I) for granting permission to publish this.

Cases and Comments

A Case of Ecthymatous Variety of Syphilitic Rash

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Name, Samlo, sex: male, age 35 years, village: Pansaree, Marwar. Occupation: farmer.

He came to my outdoor on 25th August 1947, with following complaints:—(1) Severe itching all over the body—3 months. (2) Extreme debility—6 months. (3) Multiple ulcers over the body—6 months. (4) Dyspnœa—2 months. (5) Occasional epistaxis—3 months.

History of present complaints:—Two years back patient developed itching all over the body, with the appearance of urticarial patches. A native *vaid* told him that it is "Pam", synonymous word for scabies in their language. He took lot of ghee as treatment and applied some indigenous drugs over the patches which disappeared after some weeks. He remained free of the trouble for six months or so but again got similar attack. This is his third attack, which started as urticarial patches but has ulcerated afterwards.

Past history:—Patient does not give any history of exposure but says that he developed some papules over his papuce which disappeared without treatment, about eight to ten years back. There is no history of gonorrhœa or any other infection.

Family history:—Patient has three children. The age of the youngest is 8 years, and all of them are healthy. His parents are alive and are keeping satisfactory health. His wife is healthy and does not give any history of abortions.

Personal history:—Patient is a poor labourer having an income of 20 to 30 Rs. per month. He drinks as well as smokes. He has the habit of taking *bhangi* very often.

On examination:—Patient poorly developed, with moderate degree of anæmia, and dull looking expression.

Tongue slightly coated. Teeth extremely dirty, covered heavily with tartar and tobacco stains. Gums are extremely pyorrhous.

Temp. 100°F., pulse 110 per minute. Respiration 30 per minute. Heart—normal. Lungs—breath sounds were weak and intercepted. No abnormal sounds were heard. Nose examination revealed a plug of discharge blocking both nostrils. This dry mass partly of dry mucus and partly of dried blood was lying above the cartilagenous portion of the nasal septum in the place of part of cartilagenous portion and more of bony part which had been eaten away.

Local examination:—There was asymmetrical distribution of ulcers all over the body. At certain places especially on the surfaces of the forearms some of these ulcers were covered with a blackish crust like a limpet. Pigmentation could not be elicited because the patient was a Bhol who already are very dark skinned. Patches of pigmentation, however, could be seen on the forehead. The confusing point in this case was the presence of bosses along the posterior border of the pinna of both the ears, diminution of eyelashes and presence of nodules in their place and presence of nodules on the tip of nose and lower borders of both nostrils, giving the patient a typical leonine appearance. The bridge of the nose was depressed. Throat was very red and greyish white streaks were seen on the fauces and soft palate.

Treatment:—Patient was put on following line of treatment.

℞
Potassii Iodide	...	gr. x.
Tr. Card Co	...	♏ xv.
Liq Hydrag Perchlor	...	♏ lx.
Aqua ad	...	℥ i.

Ft. Mist. one T.D. S.

2. Blaud's Pill 2, B.I.D. P.C.

3. N.A.B. intravenously, of following doses on every Monday ·3 g. ·45 g. ·6 g. ·6 g. ·6g ·6g ·75 g. ·75 g. ·75 g. in ·10 c.c. of distilled water.

4. Whole liver extract (T.C.F.) in ascending dosage from 0·5 c.c. to 5 c.c. intramuscularly every Wednesday.

5. Locally, following lotion was prescribed:

℞
Icthyol	...	2·0 G
Boric Acid	...	3·0 G
Zinc Oxide	...	10·0 G
Calamina Lotion ad.	...	90·0 cc.

6. Bismuth injections intramuscularly of ·3 g. on every Saturday.

With the above treatment patient improved very slightly in the first two weeks. At the end of third week all the ulcers healed, but he suffered

from severe epistaxis. Small nodules of the size of a pea appeared all over the body, and the bases over the face increased in size. But in spite of all this the above treatment was strictly adhered to and was supplemented for the epistaxis by the following :—(1) Nasal syringing with hot Saline ; and (2) after drying plugging one nostril with a gauze soaked in Adrenalin 1 in 1000, in such a way so as to put pressure over the bleeding part of septum.

The patient was discharged on 10th November, and advised to come after three months for a second course, which I am sure he will never do.

N.B.—I am highly thankful to Dr. E. W. HEYWARD, F.R.C.S., Principal Medical Officer, Government of Jodhpur, and the Manager of this dispensary for allowing me to publish the case reports.

A Case of Datura Poisoning by Local Action

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I was called to attend a male Muslim patient of 40 years of age on 25-10-'47. History of the patient as known from the patient's relatives :-

The patient had been suffering from some eczematous condition of the skin on the outer aspect of the left leg for a long time. He was advised by some layman to apply paste of datura seeds to that eczematous area so that it may be cured for good. Accordingly the patient made a paste of some datura seeds and applied over the area just before the sun set. Nearly one and half hour after the patient became semicomatose and restless and I was called at that time to see that patient. On examination I found the following: The patient was in semicomatose condition, restless and delirious. The pupils were widely dilated. He went through various ludicrous movements and appeared to grasp imaginary objects. He was picking at his clothes. Pulse was 120 p.m. with low tension and volume. Respiration was 24 p.m. The tongue was dry and temperature was 99·2° F.

From the above signs and symptoms it was diagnosed to be a case of datura poisoning by its local action. The following measures were adopted :

(1) The skin of that place where the paste was applied was washed thoroughly with cold water.

(2) ℞

Pot Citras	...	gr. xv
Sodi Citras	...	gr. xv
Sodi Bicarb	...	gr. xv
Pot Bromide	...	gr. vii p
Sodi Bromide	...	gr. vii
Spt Chloroform	...	♏ xv
Liq Ammon Citratis	...	♏ xv
Syrup Auranti	...	℥ p
Aqua ad	...	℥ i

Mft. Mist, one send 4 such. One dose to be taken every 4 hours.

(3) ℞ Coramine 1·7 cc injected I.M.

(4) ℞ Mag Sulph ... ℥ p

To be taken with water at 12 night.

After 12 o'clock last night the patient slept well without any excitement. In the morning the patient was brought to my dispensary by his brother. There was no dilatation of pupils. Special point to note in this case is that local action of datura can produce the above symptoms of poisoning when being absorbed locally from the skin which is denuded due to eczematous condition.

An Unusual Case of Pyrexia with Malario-Typho-Pneumonic Symptoms

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On the 2nd of August of this year I was called to see a boy of sixteen, Sankar Sujoria, who had been sick and running temperature since about a week. On the 28th of July last he suddenly had an attack of fever after an exposure to cold and rains the previous day. The fever was accompanied by chill, shivering and headache. The temperature was more or less persistent all these days, but as the patient was up and about and attending more or less to his normal duties, none had actually recorded his temperature, but the relatives did not find his body cool and normal to the touch any time during these days. At times of the day and night the patient—with varying degrees of fever on—used to get some perspirations. Lately a feature—that of delirium of a muttering character disturbing his sleeps—frightened the relatives and I was called to see and treat him. Before my visit some medicines for fever including some Paludrine tablets were brought for him once or twice from the hospital out-patient's department by representing his case.

My observations:—I found the patient asthenic and drowsy and lying on his back, with a temperature of 102·2° spleen enlarged and tender, tongue coated and dry, liver palpable, chest normal but for a rather hurried breathing rate of 32 p.m. and the pulse full and 120 p.m. He used to have one or two motions every day but was said to be constipated still. The abdomen was normal and there was nothing suggestive in the right iliac fossa. It was also reported that he used to have distressing headaches in the earlier days and his urine was of the usual febrile type. Though drowsy he was responding to each and every call and question. Due to its endemicity in the place the case was taken to be one of acute malarial fever and a strong alkaline mixture with Atebrine 1 tablet T.D.S. and a ten grain Dover's powder for the night was prescribed. The marked asthenic look of the patient was a feature that remained in my mind even after I left him. The temperature completely subsided and touched 97·6° mark on the 4th of August, with a fair amount of perspiration.

On the 5th morning it rose again rather sharply to 102·8° and an injection of Q.B.H. grs. 10 was given at about noon. The temp. rose to 103·4° towards the evening. Next morning (6th) the temp. was 102° and for the first time now there were manifest full-fledged signs of lobar pneumonia—the whole of the left lung having been affected. The patient as usual was very asthenic but in complete sense, and strangely there were neither any pain in the chest complained of, nor was there any coughing whatsoever. He had two vomitings the same day, and the breathing was 44 p.m. and shallow; pulse 120 p.m. and the delirium of the muttering type had become more pronounced during the past night's sleep. The relatives were asked to record the temperature from then on, morning and evening.

The alkaline mixture was maintained with some modifications and 'Cibazol' 6 tablets statim and 2 tablets every 4 hours after that was prescribed together with Antiphlogistine application on the chest. On that

day the evening temperature was 103·6°. On the 7th morning temperature came down to 101·4° and his general condition was reported to be better; but at 3 p.m. the same day the patient passed a chocolate-coloured stool with streaks of blood in it. The evening temperature was 103·8°. Patient had two more motions the same day at 8 p.m. and at about midnight, which were completely normal in colour and quality. On the 8th morning his temperature was 102° and he passed another blood-mixed motion at about 10 a.m. Minute diffuse sudaminal eruptions—locally popularly called "Motijhara" were also seen in two groups on the chest and abodmen on that day. Very soon after the report of the bloody stool an injection of Morphine gr. ¼ and Atropine Sulph. gr. 1/100 was given, followed a little while after by another injection of 'Coagulen' (Ciba) 20 c.c. of a 3 per cent. solution. All solid food per mouth was stopped until further orders. The evening temperature was 102·8°. On the 9th on the advice of our C.M.O. he was very gently removed to the hospital in a car, after about an hour of which the following were observed: Pulse 125 p.m. and full. Temperature 101·4°. Respiration shallow and 52 p.m. Splenic tenderness disappeared but palpability present. No motion since yesterday's injection, tongue covered with a white fur but the tip and edges being raw. The abdomen slightly tumid and a faint gurgling sound in the right ilac fossa. The dyspnœa and other lung symptoms were the predominant features of the illness drawing attention. The patient was coughing now and then and his sputum rust-coloured and scanty but very viscid and tenacious, had to be taken out every time by his attendants from inside his mouth. An immediate blood examination showed the following:—Total R.B.C.—37,50,000 per c.m.m. Total W.B.C.—5800 c.m.m. Differential count: Neutrophil polymorphonuclears—41%; Lymphocytes—48%; Eosinophils—0%; Basophil polymorphonuclears—1%; Monocytes—10%; Hæmoglobin—62% (Sahli). Widal test could not be done.

Patient's urination was free and the urine was alkaline and was of the usual febrile type with traces of albumen present in it.

Treatment:—Coramine 1 ampoule was immediately injected and Cal. Gluconate 10% 10 c.c. I.V. an hour later. The following mixture was prescribed in place of the alkaline mixture the patient had been taking till now.

℞ Oil Cinnamon	...	♏ iii
M. A.	...	Q.S.
Acid n.m. dil	...	♏ x
Liq. Hyd. Perchlor	...	♏ x
Liq. Bismuth et pepsin	...	ʒ i
Aqua ad	...	℥ i

Mit. Mist. 1 dose, T.D.S.

The temp. rose up to 104° that evening.

On the 10th, morning, temp. was 103°, pulse 120 p.m., respiration 40 p.m. No motion. No vomiting. Urination free. Towards the afternoon the temp. rose up to 103·8°. Breathing difficulty and other lung symptoms dominated the field. Diminished movement of the affected side of the chest, diminished V.F., crepitations in parts, breath sounds in parts tubular in others vesicular, with scattered rhonchii and rales, all these were present. Signs of dilatation of right heart with dyspnœa were marked.

Treatment:—(1) Inj. Coramine 1 ampoule B.D.

(2) Inj. Dagenan Sodium 1 amp. I.V. in 10 c.c. Normal Saline and 3 more ampoules I.M. at 4 hourly intervals with Liq. Coramine ♏ x and Brandy ʒ ii per mouth in the intervals.

The condition of the patient day by day and the corresponding daily treatment are given below:—

11th August:—Morning temp. 102·4°, evening 103·8°, resp. 40 p.m. pulse 125 p.m. 3 motions semi-liquid and blackish, abdomen tumidity present, patient not taking any food per mouth, delirium and restlessness last night.

Treatment:—(1) Orotyphin (U.D.) No. 1 per mouth.
(2) Inj. Dagenan Sodium 1 amp. I.M.
(3) M.B. 693 1½ tablets every 6 hours in powder form.
(4) Inj. Glucose 25 per cent 50 c.c. I.V. morning and evening.
(5) Inj. Strychnine Hydro. gr. 1/60 at 5 p.m.
(6) Inj. Coramine—1 amp. at 9 p.m.
(7) Luminal—gr. 1½ tab. at 10 p.m.

Drink.

℞ Dextrosol	...	℥ ii
Liq. Coramine	...	ʒ i
Rum	...	℥ i
Aqua ad	...	ʒ i for sipping every few minutes.

12th August:—Temp. morning 101·2°, evening 103°, general condition very asthenic and prostrate, pulse very feeble and 130 p.m., 4 liquid, very foul motions, since last evening—two of them reddish and with apparent shreds of tissue, one greenish yellow vomit, urination free.

Treatment:—(1) Orotyphin No. 2. (2) Liq. Adrenalin (1/1000) ♏ xx under tongue every 4 hours. (3) Liq. Coramine ♏ xv every 4 hours. No. 3, one hour after No. 2. (4) Mixture.

℞ Liquor Morphine Hydro	...	♏ xx
Acid Sulph. Aromat	...	♏ x
Syr. Vitalyn (C.D.C.)	...	ʒ i
Aqua ad	...	℥ iv 1 dose every 6 hours.

(5) Inj. Glucose 25% 25 c.c. and Cal. Gloco.—10% 5 c.c. I.V. B.D.
(6) Inj. Coramine 1 amp. at 10 a.m. to be repeated after 12 hours.
(7) Anumakaradhwaja (B. C. P.W.) 1 Tab. Morning and evening.
(8) Luminal 1 tab. at 11 in the night.

13th:—General condition same. Temp. morning 101°, evening 102·5°, no motion, no vomit.

Treatment:—(1) Orotyphin No. 3. (2) Inj. Musk in ether 1 amp. morning. (3) Inj. Camphor in oil, evening. (4) Liq. Coramine and Liq. Adrenalin and drink repeated.

14th:—General condition almost same. Temp. morning 101·2, evening 102·5°. pulse 110 p.m., resp. 30 p.m. No motion. Urination free.

Treatment:—(1) Orotyphin No. 4. (2) Inj. Camphor in oil B.D. (3) Liq. Coramine and drink to continue.

15th:—G. condition slightly better, Temp. morning 101°, evening 101·5°

Treatment:—(1) Orotyphin No. 5. (2) Rest as on yesterday.

16th:—Temp. morning 100°, evening 101°, 4 sticky, semisolid, foul and chocolate-coloured stools and 3 greenish yellow vomits, distressing nausea and retching, pulse 100 p.m., resp. 28 p.m.

Treatment :—(1) Orotyphin No. 6.

(2) ℞ Liq. Morphine Hydro ... ♏ xx
Acid Sulph Aromat ... ♏ x
Syr. Vitalyn (C.D.C.) ... ʒ i p
Aqua ad ... ℥ i 1 dose at 8 a.m.

(3) Mixture of 9-8-'47 restarted.

(4) ℞ Calomel ... gr. 1/6
Sodibicarb ... gr. ii
Chloretone ... gr. ii
Sach Lact ... gr. ii
Mft. Pulv. 1 every half an hour.

17th:—Temp. morning 100°, evening 100·6°. Patient stubbornly refusing to take anything per mouth by way of food, drink or medicine; one motion, one vomit. General condition prostrate.

Treatment :—(1) Glucose 25% 25 c.c. I.V. morning and evening.

(2) Repeat mixture of 9-8-'47.

18th:—General state slightly better. Temp. morning 99·2°, evening 97·4°. 1 blackish rather large motion, patient refusing food or medicine per mouth.

Treatment :—As on previous day.

19th :—General outlook very asthenic, temp. morning 101°, evening 97·4°, one blackish rather large motion, patient refusing food, distressing nausea and retching.

Treatment:—(1) Inj. Glucose 25% 25 c.c. I.V. at 9 A.M.

(2) Inj. Musk in ether, 1 amp. at 12 noon.

(3) ℞ Liq. Coramine ... ♏ xv.
Brandy ... ʒ ii.
Diapepsin ... ʒ i.
Aqua ad ... ℥ iv.
1 dose every 4 hours.

(4) Acid mixture stopped.

(5) ℞ Chloretone ... gr. 1/6.
Camphor ... gr. 1/6.
Sodibicarb ... gr. 16.
Menthol ... gr. 1/6.
Luminal ... gr. 1/6.
Mft. Pulv. 1 every hour.

20th :—Patient afebrile but asthenic, freely taking nutrition per mouth, ovaltine, fruit juice, milk, whey etc., no motion, nausea and retching almost nil. Pulse feeble and quick, respiration shallow and quick.

Treatment:—(1) Glucose 25% 50 c.c. I.V.

(2) Inj. Camphor in oil 1 amp. I.M.

(3) Essence of chicken 2 amp.

Both vomited out instantaneously.

(4) Amylogen 10 c.c. ampoules—40 c.c. orally.
(Oriental Chemical Works, Calcutta.)

21st :—Patient had 4 or 5 liquid, foul and blackish motions since yester-evening, general condition asthenic, no fever and looking peaceful. Pulse good and no nausea.

Treatment:—(1) Glucose 25 % 50 c.c. I.V.

(2) Original Acid mixture restarted.

(3) ℞ Liq. Morphine Hydro ... ♏ xx.
Acid Sulph aromat ... ♏ x.
Diapepsin ... ʒ i.
Aqua ad ... ℥ i.
1 dose at 8 a.m.

22nd :—Patient afebrile, feeling and looking better; had 3 motions and 3 vomitings, not taking any nutrition per mouth again since yesterday.

Treatment:—As on the previous day.

23rd :—General condition continues to be asthenic, pulse feeble, quick and almost uncountable, 2 chocolate-coloured motions and 5 vomitings.

Treatment:—(1) Glucose 25 % 25 c.c. I.V.

(2) Anumakaradhwaja 1 tab. (B. C. P W.)
(3) Cartazol ½ tab.
} T. D. S. in powder form.

(4) ℞ Calomel ... gr. 1/8
Chloretone ... gr. ii.
Bismuth carb ... gr. iv.
8 such, one every half an hour.

24th :—Patient again stubbornly refusing any medicine or food per mouth and weeping pitiably at frequent intervals, general outlook and state of pulse and respiration rather better; 3 vomitings and 4 loose motions after midnight.

Treatment :—Glucose 25 c.c. I.V.

25th :—Pulv. of 23rd repeated, 3 of the 8 powders being vomited out immediately after swallowing, no motion, no vomit to-day, patient better in all respects.

26th and 27th :—Patient taking food with relish milk, Horlicks, a little boiled rice and vegetable soup, fruit juice, etc. General asthenia persists but patient feels better, pulse and breathing satisfactory, urination rather less than normal. Patient not taking any medicine per mouth or any injection. The following mixture was prescribed to be given from 28th onwards.

℞ Tr. Ferri Perehlor ... ♏ xx.
Liq. Strychnine Hydro ... ♏ iv.
Cal. Gluconate ... gr. xv.
Diapepsin ... ʒ ip.
Aqua ad ... ℥ i. T.D.S. P.C.

28th:—8 a.m. The patient had one normal motion yesterday; general condition better and asthenia less.

9 a.m. A suddenly manifest, involuntary and uncontrollable, jerky, side to side movements of the head and of the arms and legs (Tetany),

which are violent and painful. Patient's attendants frightened; patient is in perfect sense and with doleful weeping says that he cannot anyhow stop those movements which are causing him so much pain. The movements are distressingly constant and continuous for minutes and hours even, occurring also when he is sleeping, (then, in diminished violence and intensity). Neck normal and jaw movements free, patient opening his mouth whenever asked to do so.

Immediate treatment :—

℞ Peacock's Bromide ... ʒ i.
Chloral Hydras ... gr. xv.
Liq. Morphine Hydro ... ♏ xv.
Diapepsin ... ʒ i.
Aqua ad ... ℥ i.
3 doses at 9-30 a.m., 12-30 p m. and 3-30 p.m.

4 p.m Movements not affected, pulse thin and quick. Resp. shallow and hurried, patient in evident distress.

Treatment :—Inj. Coramine 1 amp.

5 p.m.—Inj. Cal. Chloride 5% 5 c.c. I.V.

6 p.m.—Luminal grs. 1½ per mouth.

9 p.m.—Inj. Hyoscine Hydrobrom 1/100.

29th :—7-30 a.m. Patient peacefully sleeping free from head convulsions, pulse and resp. better. Patient awakes 9 a.m., still no convulsions.

From 11 a.m. to 9 p.m. Convulsive movements reappear and occur intermittently.

Treatment :—Yesterday's mixture repeated. Liq. Coramine ♏ xv., T.D.S. and Inj. Hyoscine Hydrobrom gr. 1/100 and Cal. Chlor. 5 c.c. I.V.

30th:—Patient had these movements intermittently till nearly 12 o'clock last midnight after which he slept well the whole night. Movements reappeared this morning with his awakening and occurred intermittently throughout the day in of course a far diminished virulence and after longer intervals of quietitude.

Treatment :—As on yesterday.

31st :—Patient slept well last night; with morning waking inflammatory swelling of both sides of the face including eyelids and lips detected; on scrutiny in finding out the probable cause, drops of pus from inside the gums at the root of the upper central incisors came out. Convulsive movements very much diminished in intensity and frequency. No motion, and no urination since the past 30 hours. Swelling of the bladder region. Patient freely taking nutrition per mouth.

Treatment:—(1) Mist. Bromide, 1 dose at 8 a.m

(2) Listerine-gargling.

(3) Dettol and Boroglycerine paint on the inflamed gums.

(4) ℞ Sulfanilamide ... 1½ tablets.
Cal. Lactas ... gr. xv.
4 such, 1 every 4 hours in powder form.

(5) Catheterisation at 8 am. and 10 p.m.

1-9-'47 :—Patient drowsy and asthenic; retention of urine again; inflammatory swelling of face and discharge of pus from gums much

diminished; pulse thin, thready and quick. No more movements of tetany.

Treatment:—(1) Liq. Coramine ♏ xv at 8 a.m. to be repeated every 4 hours.

(2) Catheterisation at 2 p.m.

(3) ℞ Urotropin ... gr. x.
Acid Sodi Phosph. ... gr. xv
Tr. Hyoscyamus ... ♏ x
Spt. Chloroform i ... ♏ xv
Inf. Buchu ad ... ʒ i
T.D.S. P.C.

(4) "Carbachol" (M.B.) 1 tablet at 6 p.m. and 1 at 2 in the night.

2-9-'47 :—Urination free and spontaneous. Facial swelling and oral sepsis further lessened; pulse condition slightly better; at 5 p.m., gets fever 101·8° with pain inside mouth.

Treatment :—(1) Mist. Urotropin 1 dose T.D.S. P.C.

(2) Carbachol 1 tab. B.D.

(3) Injection Thiazamide Sodium 1 amp. I.M.

(4) Injection Coll. Iodine (Crookes) 1 amp. I.M.

3-9-'47:—One free motion, urination free, no temperature, face swelling further lessened, pulse condition not better, patient taking fair amount of food per mouth.

Treatment :—As on yesterday and Liq. Coramine ♏ xv B.D.

4-9-'47 :—No motion since yesterday; free urination after 12 hours, no temperature. patient rests comfortably. pulse condition continues unsatisfactory.

Treatment :—(1) Liq. Coramine ♏ xv B.D.

(2) ℞ Liq. Ferri Acetatis ... ♏ xv
Tr. Ferri Perchlor ... ♏ x
Liq. Strychnine Hydro ... ♏ iii
Diapepsin ... ʒ i
Aqua ad ... ℥ i
T. D. S. P. C.

5-9-'47 :—8 a.m. No motion and no urination since past 24 hours. 9 a.m. A glycerine suppository per rectum causes a clear free motion and free urination; patient resting peacefully, pulse continues to be unsatisfactory.

Treatment :—Mixture of yesterday repeated and injection Coll. Iodine 1 amp. I.M.

6-9-'47 :—No motion, no urine since yester-noon, patient stubbornly refusing to take anything per mouth—food, drinks or medicines, nor would allow any injection to be given. Pulse not improved. Only Liq. Coramine B.D. could be given.

7-9-'47 :—Spontaneous motion and urination, patient resting peacefully, facial inflammation still persisting. Only Liq. Coramine B.D. could be given and Injection. Coll. Iodine 1 amp.

8-9-'47 :—General condition as on yesterday. Patient very much weakened.

Treatment:—(1) Liq. Coramine B.D. (2) Glucose 50 c.c. I. V. after forcefully steadying patient's fighting hands.

9.9-'47:—General state and treatment as on yesterday.

10-9-'47:—General state takes an all round better turn, patient readily takes foods and drinks but refuses any medicine except 'Amylogen' (Oriental Chemical Works, Calcutta), Proteinhydrolysate 10 c.c. ampoules 4 such during the day.

11-9-'47:—Spontaneous and free urination and motion, general improvement maintained, oral sepsis almost gone, patient cheerful, 40 c.c. 'Amylogen' given during the day.

12-9-'47 :—Further improvement in general condition; patient sheds asthenic look, is cheerful and rapidly takes foods, medicines and drinks. All traces of oral sepsis disappeared.

Treatment :—Mist. Ferri et. Strychnine of 4-9-'47 prescribed.

13-9-'47:—Patient much better, gladly takes Horlicks, Ovaltine, some boiled rice, fruit juice etc., and talks of going home. Ferri et Strychnine mixture repeated.

14-9-'47:—Patient cheerful and very much better, sits up on bed for some time propped up with pillows. Mixture the same.

From 15th to 21st:—Patient daily making steady and rapid progress in convalescing to full health and sits on bed at times and even walks on to the verandah by himself.

Treatment :—(1) Biotol 20%, Aminoacid sol. spoonfuls at times. (Frank W. Horner.)

(2) Amylogen 30 to 40 c.c. daily.

(3) Multivite (B.D H.) 3 to 4 daily.

(4) Caldeferrum (Glaxo) 3 to 4 tablets daily.

22-9-'47 :—Patient discharged as cured on his insistence to go home. Slowly removed to home in a car. Throughout the entire period of illness, scrupulous care was taken to ensure the daily and regular cleansing of the mouth and general skin surface, as also to prevent bed sores and allied complications.

Peculiarities of the case.—(1) Complete intermission of the temperature, touching 97·6° mark with perspiration on the 4th of August.

(2) Defervescence of the temperature by "*Lysis*" *on the fourteenth day* (19th Aug.), from the first manifestations of the pulmonary (pneumonia) symptoms on the 6th of August—a feature not uncommon with very asthenic lobar pneumonia cases. The fall of the temperature on the last day again was sudden and sharp and almost simulated "crisis."

(3) Even allowing the beginning of the pyrexia to have been on the 27th or 28th of July, and not considering the day of intermission on the 4th of August, the temperature chart does not conform to the usual enteric types.

(4) On the other hand, the blood report (Widal test could not be done), the enlargement of the spleen, the tumidity of the abdomen, the faint gurgling sound in the right iliac fossa, the occasional looseness of bowel and the occurrences of *Malaena*, the characteristic appearance of the tongue and the long toxæmia are no doubt features strongly suggestive of enteric fever.

(5) The clinical features throughout the illness were so much mingled up that of the typho-pneumonic elements, it was difficult any time to ascertain as to what the real primary entity was.

(6) The complications of jerky side to side movements of the head and limbs, the retention of urine, the oral sepsis and the periodic distressing apathy of the patient for all kinds of food, drinks and medicines per mouth, as also the recurring days of looseness of motions and vomitings.

(7) The very pronounced asthenia of the patient from the beginning of the illness to its end and the long continued tendency to circulatory failure.

I take this opportunity to express my grateful thanks to our Chief Medical Officer, DR. R. C. GHOSE, M.B., for his very valuable suggestions in regard to the management of the case, as also to his kind advice in publishing it.

My Mistakes

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THE object of writing this article is to enlighten the readers about the various mishaps which a surgeon is likely to encounter and, if possible, to be on guard in dealing with such emergencies. I must confess a fair number could have been to enable him averted, if proper precautions were taken both on the part of the surgeon and his assistant, on whom one has to rely implicitly. The next drawback was the want of proper facilities in the form of a pathologist and a radiologist with their appliances. Modern service cannot deal efficiently without their help, but in places where these are wanting one has to fall back on his own resources and imperfect judgment and try to do his level best for his patient in order to relieve him of his sufferings. I am to be blamed more than anyone else for such blunders as the responsibility was mine and not of anyone else, for which I, on the one hand, apologise to the profession, and, on the other, I take the pride in that we all learn by mistakes. So I have learnt a good deal at the cost of others. I now lay before the profession some of the cases from my record and request my learned colleagues and those with wider experience to help the profession by their valuable suggestions which would form the guiding principle to the young surgeons.

A case of retrocæcal appendix abscess simulating acute obstruction of bowel.

Case 1. 28-4-'47 :—I was called in hurriedly to operate on a case of acute obstruction of bowel, duration one week, and the case has been prepared for operation. Enema was given but to no effect, only soap and water were returned, no flatus was passed. Stomach was washed out and some turbid fluid with smell of fæcal matter was aspirated. His condition was grave, as he was in profound shock and dehydration due to persistent vomiting and presented all the symptoms of acute obstruction of bowel, I examined him, abdomen distended, drum-like, coils of small intestines stood out like a ladder, with visible peristalsis, abdomen branded in 8 places, size of a shilling, 4 marks on each side of the middle line. The patient had his abdomen massaged to relieve his pain, hernial rings rectum empty and

balooned out, abdomen rigid all over, on percussion it was hyper resonant all over, except right iliac fossa B.P. 80–100 mm. Hg. He was given one pint Saline and Glucose in the breast, and Coramine before the operation. As the blood pressure was low spinal anæsthesia was ruled out, *auscultation* revealed turbulent noises in the upper abdomen, but the lower segment was silent. Blood count was not done, nor X-ray skiagram taken, *clinically* it was diagnosed as a case of acute obstruction of bowel, but what type of obstruction it was, was not diagnosed. The patient was operated partly under 1% Novocaine Sol. infiltration, and partly under $CHCl_3$ and ether inhalation anæsthesia. The abdomen was opened below the umbilicus by a Paramedian incision and no sooner the peritoneal cavity was opened serous watery fluid came out, coils of small intestines were congested and distended, cæcum was hard and indurated, ascending colon was empty. During manipulation of the cæcum finger went in a cavity on its lateral aspect and a lot of foul-smelling pus came out. This confirmed the diagnosis, that it was a case of retrocæcal appendix abscess. This abscess was drained by a stab wound in the right loin, and in the right iliac fossa, and a suprapubic cigarette drain was also inserted. Sulphanilamide powder was dusted in the abdominal cavity and the wound was closed. He did not rally from shock in spite of all our efforts and died 4 hours after the operation. Had we watched the case it is quite possible we might have come to some conclusion, that it was a case of appendicitis and Ochsner Sheren treatment might have averted the catastrophy, but his condition did not warrant a waiting policy.

Case 2. *Mesenteric hydatid cyst simulating ovarian cyst* :— 29-4-'47. A lady, aged 48 years, was prepared for ovariotomy, who came on 28-4-'47 evening with a huge swelling of abdomen. She was prepared in haste, thinking she might run away. When mixed chloroform and ether anæsthesia was started, I enquired about the history of the case, number of children, condition of menses, duration of illness, etc., and about P.V. examination. As nothing was done, I wanted to postpone the operation but as she was already getting under, I reluctantly decided to open the abdomen. It was as big as a nine month's pregnancy. On inspection the abdomen was barrel-shaped, there appeared two distinct swellings, one in the right lumbar region, and the other occupying the whole of the abdomen. It was dull on percussion and a thrill could be discerned. The lumbar swelling was hard and the rest was soft, ovoid, and fluctuating. Duration three years. It started in the umbilical region and gradually increased till it assumed the present condition. The abdomen was opened by a Paramedian incision in its lower part. The incision had to be extended upwards owing to the size of the cyst. The parietal peritoneum was adherent all in front to the cyst wall and was as thick as a wet wash leather nearly 1/8th inch thick. As the cyst was adherent it was difficult to say wherefrom it sprang, it was therefore opened. The cavity was full of thick mucoid fluid, it was a huge cyst occupying the whole of the abdomen extending into the pelvis and ensheathing all the abdominal and pelvic viscera, which could not be seen except at the upper part where adherent transverse colon and hepatic and splenic flexures could be seen. Inside the cyst there were four more daughter cysts which were punctured and the same type of mucoid fluid came out. I had to ladle out the thick and viscid mucoid fluid from the pelvic portion of the cyst and could not see the pelvic organs. The cyst was marsupialised, stitched to the abdominal wall, and drained. It appeared to have sprung from the mesentery. The contents were examined, but

did not show ova of taenia echinococcus. She remained in hospital for nearly two months, was greatly improved, and then left the hospital with a discharging sinus.

Case 3. *Impassable stricture of urethra, false passage, and external urethrotomy* :—A young man, aged 25, came in with acute retention of urine. Even under $CHCl_3$ neither filiform bougie, nor sound No. 4 could be passed. He had gonorrhœa 6 years back. Some practitioner had tried to pass in a catheter to relieve the retention but failed, so he came in great agony. Under $CHCl_3$ I also tried to pass a sound beginning with No. 4 but it appeared it was going in a false passage. Wheelhouse's operation was done, and it was noticed there was a false passage. The strictured urethra below this could not be identified. On palpating it was found there was an indurated spot of the size of a marble to the left side of the false passage. On incising the induration the dilated urethra was opened, through which a rubber catheter size No. 8 could be passed, and the operation was completed.

Case 4. 7-5-'47 :—*Erection of penis and spasm of urethra under* $CHCl_3$ and ether anæsthesia in a case of stone in the bladder when the patient was under deep anæsthesia on a border-line between the 3rd and the 4th stage.

A boy, aged 10 years, came in with symptoms of stone in the bladder, duration 2 years. Under $CHCl_3$ and ether anæsthesia No. 8 lithotrite was passed and the stone was partially crushed. At this time he began getting erection of penis and the staff of the lithotrite could not be moved as it was tightly gripped by the spasm of the urethra. I asked my anæsthetist to push in more anæsthesia. He said the patient was already on the border-line between the 3rd and the 4th stage, and he could not do it more. The lithotrite was pulled off with difficulty after applying hot moist swabs to the penis, and whilst withdrawing the lithotrite some laceration of the urethra took place. I then tried to pass in No. 8 evacuating cannula. It went in with difficulty and blood-stained urine came out. It appeared the cannula had entered a false passage, so suprapubic lithotomy was done, pieces of debris of crushed stone were removed, bladder washed out and it was drained, cave of Retzius was also drained as usual. The patient made uninterrupted recovery.

Case 5. 7-5-'47:—*Acute inflammation of the testicle with acute hydrocele mistaken for acute pyogenic abscess* :—A male patient, aged 32 years, came in with a swelling in right scrotum which was red, hot, and painful, for previous ten days. The scrotum was as big as a cocoanut. He had fever also for two days. He also said that he was having a swelling off and on descending from the abdomen along the inguinal canal into the scrotum. He was manipulating the swelling and it was going back into abodmen. He was having such attacks every 3rd, or 4th month, for the last three years. The swelling used to subside in one or two days. With the swelling there was pain also along the cord into the testicle. It was swollen, red, hot and painful, dull on percussion, nontranslucent, and no impulse on coughing and not reducible. It appeared as if it were an abscess. Under $CHCl_3$ the swelling was incised, serosanguinous fluid came out, there was a coating of fibrin on the testicle, epididymis, and all over the tunica vaginalis. Both the layers, visceral and parietal were covered with it. The fibrin coating was as thick as wet blotting paper. It could be peeled off from all over

leaving raw area which bled. During operation the patient ceased breathing. Artificial respiration was performed and Adrenalin was injected. He came round alright. Two corrugated rubber drains were inserted and the wound closed. As there was no facility for laboratory findings or culture, it could not be done.

Case 6. 6-5-'47:—A child, aged 8 years, came in with retention of urine. Bladder distended as high as umbilicus, duration 4 days. The parents said that obstruction came on all of a sudden. The house surgeon first tried a rubber catheter, but failing tried a metal catheter. It went in easily, the urine was drawn off. He said while he was passing the metal catheter he felt there was a small stone at the neck of the bladder, so he prepared him for operation the next day. On 8-5-'47 under $CHCl_3$, I wanted to do lithalooaxy. I could not get the stone in No. 3 lithotrite of children. My efforts failed and I could not then even feel the stone. The child was sent back to bed for further observation. On the 9th, he again had retention of urine and the house surgeon again passed the metal catheter and felt the stone again in the prostatic urethra. He was again on table for operation. Under $CHCl_3$ I could feel the stone embedded in prostatic urethra. It could not be moved with the lithotrite, hence I dislodged it into the bladder by passing the index finger into the rectum and crushed it. In the first attempt I missed it as it was lying impacted in prostatic urethra.

Case 7. A patient, aged 40 years, came in with retention of urine, duration 4 days. Some two years back his penis was partially amputated at the corona glandis. Since then he was passing urine alright. No history of syphilis or gonorrhœa. The house surgeon dilated the meatus with a sound and he was passing the urine. Sound was again passed, but it won't go in owing to stricture of urethra. Urine was passed with difficulty and it was blood-stained. In the night he passed a lot of blood with the urine. On 19-5-'47, this case was shown to me. Under $CHCl_3$ I tried to dilate the stricture after slitting open the urinary meatus. It appeared to me the whole penile urethra was strictured and No. 5 sound even could not be passed. I did not attempt any more and asked the house surgeon to try and see if he could succeed. He tried No. 7 evacuating (stone) cannula and passed it in with difficulty. Nothing but blood came out. I also saw this and it looked the cannula was in the bladder, as its point was moving freely inside the bladder. I washed the bladder out with Acriflavine solution 1–10000 and the return fluid was all blood-stained. I sent him to bed and watched for further development. In the evening on 21-5-'47, his temperature remained between 99—100° and he passed blood-stained urine. On 21-5-'47 I again operated on him under $CHCl_3$. His penis was intensely swollen due to congestion in corpus cavernosum. I slit the external urinary meatus. I could not find the urethra, the penile urethra appeared all strictured. I stitched the skin of the penis to the so-called external urinary meatus and tried to pass No. 5 sound again, but it won't go in. I did suprapubic cystectomy, the bladder was full of blood and there were no clots. I then tried to pass retrograde catheter No. 8 (rubber). It would go in as far as the membranous urethra, and won't go further. I then passed No. 8 sound through the internal urinary meatus. Its point was felt in the perineum. On this point the urethra was opened. I then passed No. 10 rubber catheter through the perineal wound into the bladder and passed a Wheelhouse's staff through the perineal wound up the urethra and forced it out

the external urinary meatus. I attached a rubber catheter size No. 5 by stitch through its eye to the hooked end of the staff and pulled it out of e perineal wound, and from here I passed it on into the bladder. The adder was thus drained in three places. No. 8 rubber catheter (perineal) as attached to a rubber tubing leading to a bottle below at the side of the d. All three drains were stitched to the wound and the part was drained d dressed. On 24-5-'47 suprapubic tube and the urethral catheter were moved, only perineal catheter was left in. On 5-6-'47 all tubes and cathers were removed bladder was washed with Acriflavine solution, lot of pus me out. after this the recovery was uninterrupted. The wound was cometely healed and sound No. 12 could easily be passed through the external inary meatus. The patient left the hospital as cured. He was advised to ave his stricture dilated regularly.

Case 8. 12-5-'47:—A hard immovable mass as big as a tennis ball in ght iliac fossa simulating malignant cæcum, but was tuberculous. A female, ged 45 years old, came in with a painful swelling in right iliac fossa, duraon 3 years. In the beginning the pain was felt every second month, then very month. then the interval gradually shortened, and now she gets it very day. It has no relation with food. She feels some sort of a ball moving the abdomen during the attack. She gets vomiting which gives her relief. he has diarrhœa for the last 15 days, with griping but there is no blood or nucus in the stools. She has had 11 deliveries, five are alive, last delivery ne month back, this child also died.

Stool examination:—No amœba or bacillary exudate, there is occult lood, but no mucus, or blood T.D. White 12000 P.C.M.—Poly 70%; Lympho 25%; Larmono 5%; Eosinophile 3%. Operation on 22-7-'47. MacBurney's Gridiron incision, peritoneum opened, iliac glands enlarged, cæcum thick and studded with tubercle, the gland swelling was soft and was punctured with a thick broad bore needle and thick caseating pus came out. I wanted to short circuit performing ilio-colostomy but as there were tubercles all over the intestines as well as on transverse colon so it was deferred, and the wound closed. She was having rise of temperature which did not subside and she died on 31-7-'47.

Case 9. *Fibrinous hydrocele*:—A male, aged 67 years, came in with a swollen scrotum of left side, size of an orange, duration 10 days. A week back he noticed he had pain in it. He applied tobacco leaves and fomented it for 3 days but to no effect. It was painful, red, hot, illumination test negative, no impulse on coughing and not reducible. There was no fever, and it was suspected there was pus in it. Under $CHCl_3$, it was incised, a lot of fibrinous material with serous fluid came out. The fibrinous coating was all over adherent to the cavity of tunica vaginalis both on parietal and visceral layer, like a diphtheretic membrane, most of it was peeled off. There was not much bleeding from the raw area. Sulphonamide powder was dusted and the wound closed with a corrugated rubber drain. There was no history of syphilis, or gonorrhœa or trauma. Laboratory report on the exudation and fibrinous material was negative for diphtheria bacillus, strept. and staphylo. were found, the former predominant.

Case 10. *Fracture of shaft of left femur of 4 month's duration simulating endothelial sarcoma*:—X-rays not available. On 26-5-'47, a patient aged 36, came in with a huge swelling of left thigh and leg like elephantiasis, and three sinuses on the back of the thigh discharging offensive pus.

Four months back he fell down from a tree fracturing left shaft of femur. For two months he stayed in his house and was treated by a local *raid*. Finding no relief he went to a hospital, here also he stayed for a couple of months, and as there was no change for the better in his condition he came to Nowgong. On examination he is a young man but helpless owing to swollen thigh, and leg and discharging sinuses. On 4-6-'47, under $CHCl_3$ and ether, femoral artery and vein were ligatured in scarpas triangle. I wanted to disarticulate at the hip, but his condition was reported by the anæsthetist as not satisfactory I hastened the operation by amputating just below the great trochanter. Glucose, Saline and Coramine were resorted to and he rallied. The convalescence was uneventful.

The separated thigh was afterwards cut open and it was found that it was a case of oblique fracture of the shaft of femur with a lot of callus thrown about and irregular islets of osteophytese in the surrounding muscles producing the swelling giving the appearance of a sarcoma.

Case 11. *Carcinoma of penis mistaken for syphilis*:—A patient, aged 40, came in with an ulcer as big as a shilling on the under surface of the penis. Duration one year, inguinal glands enlarged on both sides and shotty. He had phimosis also. Under $CHCl_3$ and ether, prepuce was slit open and it was discovered it was a case of carcinoma of the penis. Partial amputation of penis behind the corona glandis was done and inguinal glands on both sides were removed. It started from inside the prepuce, then involved the under surface of the glans nearly its half, and then perforated its ventral surface.

Case 12. 16-6-'47:—*Ruptured tubal pregnancy mistaken for incomplete abortion.*—A woman, aged 22 years, came in with bleeding from the uterus for the last two months. She was changing two or three pads daily. She has had 4 children, one is alive and is 6 years old. Three died, last child was born 9 months ago. After the last delivery she menstruated once and at the second period when bleeding started it has not ceased. PV os open, cervix soft, a little dirty blood-stained discharge from the uterus, uterus slightly enlarged, and retroflexed, she has no pain, no other discomfort, except bleeding and is quite normal in her avocations, she was slightly anæmic. On 21-6-'47, I wanted to clear out the uterus under $CHCl_3$, but I was surprised to find that nothing was inside, the uterus cavity and the retroverted uterus remained the same size which confirmed the diagnosis of ectopic gestation with pelvic hæmatocele. After this she continued to bleed as usual. On 7-7-'47, under $CHCl_3$ and ether, abdomen was opened by a Paramedian subumbilical incision. On opening the peritoneal cavity, omentum presented. It was blood-stained and congested. There was fluid blood in the pelvic cavity, the right tube was enlarged and cystic at the ampula and size of a big plumb with pelvic hæmatocele of the size of a golf ball. The tube with the cystic ampula was removed and the pelvis was also cleared of all blood and clot, the abdomen was closed as usual. The convalescence was uninterrupted. She was alright and discharged on 21-7-'47 as cured.

Case 13. 23-6-'47 :—*Reactionary haemorrhage after a radicle hydrocele operation necessitating excision of testicle*:—I operated on a young man, aged 20 years, for hydrocele of right tunica vaginalis. After the usual operation of excision of the sac and complete hæmostat, a corrugated rubber drain was left in. After the operation I was quite satisfied that there was

no bleeding, and all the bleeding points were controlled by linen thread as usual, but in the evening he bled a lot into the scrotum which was distended with blood and it did not clot. On 24-7-'47 I was shown the case. The condition of the patient in spite of bleeding was not bad. He was in great agony, and the swelling was as big as the head of a full grown fœtus. Under $CHCl_3$ and ether, the wound was reopened, fluid and some clotted blood were removed. There was effusion of blood into the cellular tissues of the scrotum. There was a general oozing from all round the cut surface of the sac, it was difficult to control the cord above, the testicle was interlocked and the testicle was excised. He was bleeding from gums also. He was treated for scurvy and he recovered alright. Neither coagulation time nor blood picture was ascertained.

Case 14. 10-6-'47 :—A male, aged 22 years, and very stout came in with procedentic of the rectum, duration 3 years. It came gradually by itself, no history of diarrhœa, or dysentery, or of straining or wasting. Sphincter was completely relaxed and the prolapsed portion which was nearly 4" long always remained outside. This was a constant source of annoyance to the patient as it spoiled his clothes. Under $CHCl_3$ and ether I operated on him by Goodsall method, *i.e.* a long silk thread with three needles suturing and ligaturing the anal mucous membrane. This combined with Theirsches method, *i.e.* inserting silver wire subcutaneously all around the anus beyond the external sphincter. The silk threads came out on the 15th day, and on 10-7-'47, the silver wire was removed. The prolapse did not recur for a month. He left the hospital, and further progress could not be traced.

A Case of Meningitis

KAMAL KRISHNA CHATTERJEE, L.M.F.,
Medical Officer, Garh-Lakhanpur, Surguja State.

A Muslim girl, aged 11 years, daughter of the headmaster of the local school suddenly fell down unconscious while standing. Previous to this she was quite hale and hearty. After trying unsuccessfully to bring her to senses for half an hour, I was called in to see the case at 10 a.m. on 24-11-'47.

At my first visit I saw the girl semi conscious with violent convulsions. She vomited the impartially digested food which she took in the morning. Soon after she became fully unconscious. On examination I found the patient a little anæmic as she had an attack of malaria a fortnight ago, and was treated by me. Temp. 97°F. Spleen and liver normal. Eyes closed. Heart sounds feeble and irregular. Coldness of the lower extremities. No history of epileptic attack nor of the family members. After seeing all these symptoms I came to the conclusion that she might have been attacked with cerebral type of malaria, as this type of malaria is common in this area.

She was given only heart stimulants, cold application on the head, and was kept under observation for other symptoms. During the whole day and night her condition remained the same and her parents spent all these hours fearing collapse at any moment.

25-11-'47.—The same condition. Both eyes deeply congested. Temp. 98°F. Convulsion of violent nature began. Glucose Sol. with Hyoscine Hydrobrome was given as sedative in place of Calcibronat. Convulsion persisted for whole day and night.

26-11-'47.—The same as on previous day with positive Kernig's sign and head retraction. Cartazol with Hyoscine Hydrobrome was given. Bowels moved by enema.

27-11-'47.—The condition a little improved. No convulsion. Opened her eyes. Semiconscious. Delirious talks with regular movements of the limbs.

28-11-'47.—Condition improved further. Could take fluids with some difficulty. Two doses of Chloretone given. Slept for some hours in the night. Bowels moved.

29-11-'47.—Same as on the previous day.

30-11-'47.—General condition much improved. Gave a very charming look. Could speak to me her troubles. Complained of heaviness in the head and pain on neck muscles. Another two doses of Chloretone given.

1-12-'47.—All the troubles subsided. Crying for solid diet. Normal movements of bowels.

Since then she had been making uneventful recovery with vitamin B complex and other nerve tonics.

The points of discussion in this case are :—

1. Whole picture simulates that of meningitis of whatever origin it may be, and cured so simply with symptomatic treatment.

2. There was no fever throughout the course and no enlargement of the spleen. Hence Quinine injections were not given.

3. Returned to her normal senses so abruptly after a good sleep like those of hysteric subjects.

As there were no facilities for pathological examination of the case I am still quite in the dark about the exact diagnosis. All what I have done in this case are treatments of the symptoms. I therefore request the learned leaders of the ANTISEPTIC to throw some light in the subsequent issue of this journal.

I am very grateful to LAL BAHADUR SAHEB, Garh-Lakhanpur, for his taking kind interest in the treatment of this case.

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The New Year

THE curtain has fallen on the year 1947, and a New Year is now on us. With independence achieved and National Government composed of true representatives of the people at the helm of affairs, one would naturally expect great and good things to be done to ensure the happiness and contentment of the people. But unfortunately the political horizon has become overclouded. Events are happening at such terrific speed that one is unable to forecast what will happen at the next moment. But for the tact and patience shown by those at the helm of affairs, in spite of the greatest provocation, the New Year would probably have found our country in a state of war with the newly formed Dominion, Pakistan. India would certainly be within her rights if she had allowed her army to enter the Pakistan territory and prevented the raiders from using that territory as the base for their operations against the Kashmir State. But instead of doing that, our leaders have followed the course laid down in the United Nations Charter and placed their case before the Security Council of that organisation for speedy action. The reasons which have impelled them to do so are not far to seek. They are at the present moment confronted with a situation in which the defence of Jammu and Kashmir State is hampered and their measures to drive the invaders from the territory of the State are gravely impeded by the support which the raiders derive from Pakistan. Certainly an intolerable state of things for any Government, much more a National Government, to put up with.

But the question is whether the Security Council will take immediate and effective steps to bring Pakistan to her senses. Past experience does not give us much cause for hope. Power politics plays a very great and ignoble part in that organisation, with the result that no issue is really considered on its merits and disposed of in a just manner. We hear it said that there is not much scope for power politics to play its part in this issue. Nothing would give us greater pleasure than that this issue is gone into on its merits. The Government of India have acted very wisely in selecting MR. N. GOPALASWAMI IYENGAR to lead the delegation on behalf of India before the Security Council. In addition to his wide and varied experience as a great administrator and his knowledge of Constitutional Law,

he has the additional advantage of having been the Dewan of that State for six years, with a thorough knowledge of the conditions obtaining there and therefore in a position to answer any issue about the internal administration that may be raised by the other side. Let us hope that the Security Council will not allow itself to deviate from the straight path by the attempts that are likely to be made by the other side to cloud the issue, and will decide upon immediate steps to stop the murder and loot that are going on in that State and help India in its onward march.

Even otherwise the situation in the country is not free from anxiety. Mountains are made of molehills, and attempts are still being made by some mischievous elements to disturb agreements that have been arrived at. Labour troubles still continue, in spite of the fact that the immediate and urgent need of the hour is production and more production We had one day labour strike in Bombay the other day which from all accounts appears to have been successful. Here at least the cause of the strike was something understandable. But in Calcutta, one day strike was arranged by some parties as a protest against a Bill which, it is stated, curtails the liberty of the individual. The strike, it is said, was *not successful*. We are not concerned with the result. What gives us cause for anxiety is that at a time when all the efforts of our countrymen should be concentrated in raising the status of the country in the economic scale so as to ensure the happiness and contentment of the people, there should be elements in the body politic bent on creating trouble. To add to this the failure of the monsoon in many parts of the country has given cause for serious alarm. It looks as if our country will have to depend on foreign countries to a great extent for her food requirements in the year.

Under the lead of MAHATMA GANDHI, the Government is slowly and steadily following a policy of decontrol. Already many articles have been freed from control restrictions, and we are told that the control on paper and textiles is likely to go very soon. In regard to food-stuffs, the Government are adopting the policy of decontrol by stages. There is of course difference of opinion in the matter of decontrolling food-stuffs, a large section holding strongly the view that decontrol would create a very serious situation. Many organisations are also up against the policy of decontrol. But it should not be forgotten that blackmarketing, corruption and many other ills which are now rampant everywhere are the offshoots of the present policy of control. While protesting strongly, on the one hand, the continuance of these ills and threatening dire action against *those indulging in these unsocial activities*, it is not desirable, on the other hand, to continue a system which has brought about this deplorable state of things. If, as a result of decontrol of food-stuffs, the serious position which existed prior to the introduction of control arises, it should not be difficult to re-introduce the system. So far as we are concerned, we would welcome wholeheartedly the decontrol of paper. The various restrictions that were imposed disabled us very much from serving our readers a full fare and thereby prevented us from spreading knowledge as widely as we wish. If in spite of these restrictions, we have been able to carry on it is in a very large measure due to the unstinted support which we received from our contributors, subscribers and advertisers who have through thick and thin stood by us faithfully, and to them we convey our most grateful thanks. We feel confident that they will extend to us their help and support in an increasing measure in the new year and the years to come to enable us to serve them still more usefully and efficiently.

The country is now passing through a very difficult and, if we may say so, a dangerous period. The usual slogan on such occasions, is, "while hoping for the best be prepared for the worst." But we still hope that the dark clouds that are overhanging the country will clear like mist and that the New Year will bring about the dawn of a really new era of peace, happiness and contentment. In that faith and hope, we wish all our readers, contributors and advertisers a very **Happy and Prosperous New Year.** JAI HIND.

The Bombay Conferences

TILL very recently the Christmas Week was the busiest in the year, all important political and social organisations meeting in their annual session during the week, taking stock of the situation and deciding upon the plan of work for the year to come. Such Conferences were necessary so long as the country remained in bondage, to rouse the people to a sense of their rights, duties and responsibilities. Happily that state of bondage has now become past history, India has achieved freedom, and we have become masters in our own homes. The need, therefore, for serious political and other Conferences has ceased to exist, and in their place has arisen the need for such organisations as are devoted to the advancement of the country's health and well-being, to meet and discuss problems facing the country and find solutions. While planning on the industrial, economical and other allied spheres is necessary to enable the community to attain its rightful place among the comity of nations, the execution of all these plans is entirely dependent on the health and capacity of the people who have to carry them out. The medical profession therefore holds the strategic position, and only by enabling it to discharge its duties to the public properly can real results be achieved.

Medical service is a big tree with various branches such as Medicine, Surgery, Obstetrics and Gynæcology, Dermatology, Radiology, Ophthalmology and a host of others. Each branch has its own votaries and its own independent organisation to promote their cause and the cause of the particular branch of the science to which they are devoted. They were meeting annually at their conferences and taking collective decisions on matters pertaining to their interests. The reason for such independent organisations for particular branches of the science is not far to seek. While a medical graduate is supposed to be equipped by his education and training with a knowledge in all branches of the medical science, it is not possible for all of them to keep themselves abreast of the latest developments and discoveries. That is why most of the members of the profession restrict their practice to particular branches of the science and attempt to specialise in it. Therefore the various branches that have taken of from the common tree, though they have problems of their own, have much in common and are in a way interdependent to help relieve ailing humanity of its suffering. In the interests of humanity, therefore, it is necessary that the votaries of the various branches of the science should, at least once a year, meet in one place in a common platform, discuss problems common to them, exchange ideas and decide upon steps necessary to bring about co-operation and co-ordination of their activities. Such a happy event, and in the words of DR. KINI, a

gathering of all medical men in India in a Medical Conference and festival, took place in the last week of December in Bombay, while each group had a separate Conference of its own. The Twenty-fourth Session of the All-India Medical Conference was held under the presidentship of Lt.-Col. AMIR CHAND; the Surgeons of India met under the presidency of DR. KINI; the Obstetric and Gynæcological Conference was presided over by SIR A. LAKSHMANASWAMI MUDALIAR; the Radiological Congress was opened by the Director-General of the Medical Services in India. DR. JIVARAJ MEHTA; and the Medical Licentiates held their own Conference with DR. MANKAD DAMODAR PUSTAKE in the chair.

Even a cursory glance at the addresses delivered by the Presidents and of the proceedings of these Conferences will show how in regard to the steps to be taken by the Governments in the country to improve public health and extend medical relief all hold the same views. While it is not possible in the short space of an editorial to traverse in detail all the points raised in these addresses and all the suggestions made at these Conferences, we cannot but refer to at least some aspects on which special emphasis had been laid by most of them. The President of the annual session of the Indian Medical Conference being a "homeless refugee lying, to all interests and purposes, on the road-side without any references at hand and with a distracted and perturbed state of mind," it is but natural that he should have devoted a good portion of his Address to the happenings in once his part of the country which have reduced him and millions of others to this deplorable position. These have created many problems for the Government and some problems for us also. We have referred to some of them in the last issue.

Many members of our profession who were living happily in those areas ministering to the needs of suffering humanity have been cruelly butchered and many have been deprived of their all and driven from their homes. In regard to the former we can only extend our heartfelt sympathies to their families; in regard to the latter, our brethren fortunately placed can do a lot to make their lot tolerable by helping them in their resettlement and rehabilitation. As has been admitted by the President, the Indian Medical Association has already done something in this direction, and if the Governments, Central and Provincial, and local bodies come forward to avail themselves of the opportunity—it is admitted by the powers that be that there is a lack of sufficient number of qualified medical men in our country. Even H. E. the Governor of Bombay who opened the Conference regretted the lack of sufficient number of qualified medical men. Therefore though the circumstances which brought about this state of things is a very unhappy one, it is in a way God-sent,—these unfortunate brethren can be rehabilitated in places where medical relief is lacking and their service availed of.

The level of public health in India, especially in the villages, is at the lowest ebb. Writing on this several years ago, GRANT stated that "preventable epidemic diseases such as small-pox, typhoid, dysentery, cholera and malaria are widespread. Tuberculosis is spreading and each year presents a menacing problem. The resistance of population to disease is low. Malnutrition and nutritional diseases are omnipresent. The heavy incidence of disease is reflected in the high mortality figures." Though much water has flowed under the bridge in many spheres since GRANT wrote this years

ago, the position in this regard remains much the same, if not worse. It required a famine of an unprecedented magnitude, taking away a toll of millions of lives, to open the eyes of an alien Government to the need for appointing a Committee to enquire into existing conditions and report on the measures needed to bring about radical improvement in the position. It is more than a year since the Committee submitted its voluminous report. Conferences were held in the Centre and in the provinces to consider some of the recommendations; and yet we are where we were. And while the achievement of independence and the transfer of full power into the hands of our leaders had kindled hopes in the hearts of many that immediate and effective steps would be taken to implement the recommendations of the Bhore Committee, there came a bolt from the blue in the shape of murder, arson, looting and all the rest associated with barbarism of the worst type which have created not only problems of extraordinary difficulty but also involved the country in a huge expenditure. As if this is not sufficient, a large scale offensive in Kashmir has been forced on India at a cost, at the existing rate, of four lakhs a day. The situtation unfortunately looks like deteriorating further, and if such a situation arises, the expenditure would mount by leaps and bounds. It is therefore no doubt a very difficult and unenviable position in which those at the helm of affairs find themselves to-day. But they should not forget that they had raised high hopes, that they had held out promises to the people before the achievement of freedom that when power was achieved they would make their lives worth living. And people will judge them only by their actions. If the fulfilment of the hopes raised, promises held out are deferred for far too long as to cause serious disappointment, it may create a feeling of frustration and other ill-effects in its wake, the results of which it is impossible to foresee. There is already a feeling of disappointment that the leaders had not stood firm on the partition issue as had been definitely promised by them. It is therefore incumbent on them, even in the midst of adversity, to carry out the promises made, if not in full at least to a great extent. Where there is a will, there will surely be a way.

In the matter of drugs and medical appliances the position in which we find ourselves is not one of which any country can be proud. For all the drugs which are worth retaining in the pharmacopœia and which are essential, and for all the appliances and instruments required to practise the science of medicine, we are very largely dependent on foreign countries. What that dependent position places us in, we have seen during the war periods. During the first world war when the pinch was keenly felt something was done by the Government to encourage the production of some drugs in the country. With the cessation of hostilities the Government ceased to give these nascent industries their help and support with the result that they perished for want of succour. During the second world war we again found ourselves in a helpless condition and the then Government came forward with greater assurances than before of help not only during the period of war but also for the future as well. It is true some improvement has taken place, but no one who has the interests of the country at heart can rest satisfied with the existing state of things. We must move forward at a great pace. We hear much of planning and schemes these days. Only by the development of heavy chemical, bio-chemical and synthetic drug industries and by the manufacture of instruments of precision quality, durability and dependability can India achieve at least self-sufficiency.

Considerable stress was laid on post-graduate education both by DR. AMIR CHAND and by DR. KINI. As DR. KINI very rightly observed, the material in India is extensive; there is no lack in intelligence. What is required is enough of facilities for post-graduate study. In the absence of such facilities at the present day, many of our young men and women have to go to foreign countries for getting "branded" there. It entails a very heavy strain on the very poor and limited resources of our country; it deprives young men and women with intelligence but without financial backing of the opportunity of developing their knowledge to the fullest possible extent. We are not against foreign education as such. It has its own value, and, as DR. AMIR CHAND observed, to go abroad is by itself an education. What DR. AMIR CHAND pressed and with which we wholeheartedly agree, is that as in other advanced countries we should develop our own resources to the fullest extent to give our young men and women under-graduate as well as post-graduate medical education of a high order comparing well with similar education in other countries and send only such people abroad who have proved their worth here, who to improve on it need a finishing touch by master minds and who coming in contact and working under men of international repute will themselves be in a position to attain similar status.

The achievement of independence has brought to the fore many problems that have so long been unceremoniously and callously shelved by our alien rulers. The many new and difficult problems that have arisen unexpectedly have made an already difficult situation much more complicated and difficult. The profession has to take care of itself, it has to advise the Government on the steps to be taken to bring about a thorough reform in the administration of medical relief and the improvement of public health on the lines recommended by the Bhore Committee and in ways which appear to the profession to be productive of results. Nothing has more hampered the progress of medical relief and prevention of disease in India than the divorce of preventive from curative medicine. The urgency of rewedding them is really very great. Our National Government should be made to realise that what the people want is not a bottle of medicine, but a bottle of good health. In the words of Prof. SIGERIST "Health is one of the goods of life to which man has a right; wherever this concept prevails the logical sequence is to make all measures for the protection and restoration of health accessible to all free of charge. Medicine like education is no longer a trade, it becomes the public function of the State." To make the Government realise this and act upon it, we must create unity among ourselves first. Though the I.M.A. and A.I.M.L.A. are wedded to union, it has not so far unfortunately been brought about. It should be brought about early. Those of our profession who are still keeping out of the organisation for reasons into which we need not now enter, should come in. If these are achieved we would have gone a long way towards our advancement and towards the advancement of the country. The united voice of the profession is bound to be heard, respected and acted upon. Only in this way can we help ourselves and help the cause of suffering humanity.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Production of antibiotics by fusaria.—A. H. Cook, S. F. Cox, T. H. Farmer and M. S. Lacey.

Earlier communications described the production of an antibiotic pigment, javanicin, by *Fusarium javanicum*, and other *Fusaria* were also observed to give rise to antibiotic metabolism solutions. So far, the examination of twenty-two *Fusarium* strains has revealed a frequent property of this kind; for convenience the moulds may be divided into groups according to the kind of activity exhibited by the crude culture fluids.

Group I, equally active against *Mycobacterium phlei* and *Staphylococcus aureus*: *F. javanicum*, *F.6*, *F.64* (*F* numbers refer to strains which are as yet unidentified).

Group II, more active against *Myco. phlei* than against *Staph aureus*. *F. lateritium*, *F. avenaceum*, *F. sambucinum*, *F. dianthii*, *F. fructigenum*, *F.63*, *F.75* (probably a further strain of *F. lateritum*).

Group III, active against *Myco. phlei*, inactive against *Staph. aureus*. *F. culmorum* (Str. 61), *F.72*, *F.91*, *F.101*.

Group IV, inactive against both *Myco. phlei* and *Staph. aureus*: *F. oxysporum cubense*, *F. culmorum* (2nd strain), *F. corruleum*, *F.8*, *F.10*, *F.26*, *F.73*, *F.88*.

Clearly this classification may depend on the cultural conditions employed, and it would in any event be less significant if the varying activities were merely due to varying proportions of two antibiotics or classes of antibiotics. Closer examination, however, has afforded chemical evidence which suggests that this division may reflect a more fundamental biochemical grouping.

The antibiotics produced by *F. lateritium*, *F. avenaceum*, *F. fructigenum*, *F. sambucinum* and *F.75* (probably also a strain of *F. lateritium*) (Group II above) under selected conditions have now all been isolated in pure crystal-line state. Excepting the product of *F. fructigenum*, it is believed that under the culture conditions employed these new compounds represent the whole of the antibacterial activity present in the crude metabolism solutions. Naming them conventionally according to the species from which they are derived (that from *F.75* being provisionally termed lateritiin-II) these compounds are quite distinct, the melting point of a mixture of any two being depressed: Lateritiin-I, $C_{26}H_{46}O_7N_2$, m.p. 121–122°; lateritiin-II, $C_{26}H_{46}O_7N_2$, m.p. 125°; avenacein, $C_{26}H_{44}O_7N_2$, m.p. 139°; fructigenin $C_{26}H_{44\text{-}46}O_7N_2$, m.p. 129°; sambucinin, $C_{24}H_{42}O_7N_2$, m.p. 85–86°. These formulæ are regarded as subject to some revision of detail, though each is based on repeated concordant analyses. The compounds are also distinct in their antibacterial properties, as appears from the differing 'bacterial spectra' in the accompanying graph.

On the other hand, the compounds are so similar in chemical behaviour as to leave no doubt that they owe their biological activity to similar structural features. They are colourless, optically active, neutral, and sparingly soluble in water, but very soluble in organic solutions including light petroleum. All are stable to mineral acids under ordinary conditions, and to heat; indeed, lateritiin-I, could be distilled *in vacuo* without chemical change occurring. However, all are very unstable to alkali, so that all antibacterial activity is irreversibly lost in solution at *p*H 10-11 at room temperature after 18 hours. During this inactivation approximately two acid groupings per molecule are produced but disappear again, possibly by lactonization, when attempts are made to isolate the primary inactivation product. The group of compounds is otherwise notable for its lack of easily recognizable structural features. Thus avenacein contains no acidic, basic, carbonyl or alkoxy groups, nor any active hydrogen atoms detectable by the usual means. It does, however, contain two N-methyl and four C-methyl groups. When the compounds are heated with concentrated hydrochloric or hydrobromic acid at 120°, they are degraded to optically active crystalline bases which contain all the nitrogen present in the antibiotics. In addition, each of the antibiotics gives rise to the same crystalline acid, $C_5H_{11}O_2$; in the case of lacteritiin-I, the yield approaches that corresponding to the formation of two molecules of acid. The latter has been completely identified as the optically active α-hydroxy*iso*valeric acid corresponding to *d* (-) valine. To the best of our knowledge this acid has not previously been obtained directly from any natural source. It is interesting to note its correspondence with the amino-acid and particulary its retention of optical activity, the configuration being the 'unnatural' one.

Attention was specially directed to these antbiotics because of their action against *Myco. phlei* and possibly, therefore, against *Myco. tuberculosis*. Tests with lateritiin-I against three stains of tubercle demonstrated *in vitro* inhibitions at limiting dilutions of 1 : 160,000–1 : 640,000, indicating a high activity. Mouse experiments pointed to relatively low toxicity, at least by intraperitoneal administration. We are indebted to Drs. P. D'Arcy Hart and R. E. Glover (National Institute for Medical Research) for these results, but any therapeutic possibilities remain largely to be explored.

It has been noted that these *Fusarium* antibiotics are best produced when the mould is in a somewhat metabolically degenerate state. Perhaps such anti-biotics are

normal but mostly transient metabolic products, which only accumulate in sufficient quantities to permit of their recongnition and isolation under abnormal culture conditions. It may perhaps be further envisaged that more deliberate induction of a moderately degenerate state may afford a degree of control over antibiotic production. Finally, it is worth noting that the above compounds appear to be products of an arrested metabolism exerting an antibiotic action on other presumably similar though obviously distinct metabolisms. The fact appears to offer perhaps profitable speculation on the mechanism of such manifestations of interference.

We are indebted to the Medical Research Council for assistance, and to Sir Ian Heibron for his interest and encourgement. —*British Information Service.*

The diagnosis and treatment of anæmia. —Bertha L. Paegel and Joseph F. Ross, Boston University School of Medicine, Boston, Mass. *M. Clin. North America* 30:1042-57, September 1946.

A definite anemia has been found in from 12 to 25 per cent of all patients who are admitted to the large general hospitals of the United States. The three most common types of anemia may be classified generally as those which are caused by an insufficient supply of the essential substances for erythrocyte and hemoglobin formation; those caused by a defect in the function of the bone marrow; and those caused by rapid destruction or rapid loss of erythrocytes. Laboratory examinations are necessary for the accurate determination of the type of anemia. These laboratory procedures show the concentration of the erythrocytes and hemoglobin in the circulating blood, the volume or size of the erythrocytes, the concentration of hemoglobin in the red cells, the rate of blood destruction and the rate of blood formation. On the basis of these findings almost all anemias may be classified morphologically as microcytic hypochromic, normocytic normochromic, microcytic normochromic, or macrocytic "hyperchromic" anemia. The etiologic classification is reached by combining the morphologic description with studies of the reticulocyte count and the serum bilirubin or icteric index.

The most common form of anemia is that characterized by microcytic hypochromic erythrocytes. This anemia is almost always caused by a deficiency of the body iron, which in turn is ordinarily brought about by blood loss, pregnancy or growth. Inadequate dietary intake or poor absorption of iron from the gastro-intestinal tract alone, can never be held responsible for this type of anemia. Since, in adult men, anemia is always the first sign of a hidden blood loss (frequently true of women), a search for this blood loss will often reveal the presence of an otherwise asymptomatic neoplasm of the gastro-intestinal tract at a time when surgical therapy will be the most effective. In the treatment of this anemia the ferrous salts are not only more effective therapeutically but they cause less gastro-intestinal distress than ferric salts. This distress may be avoided by employing a small dose, 0·2 to 0·5 Gm. of ferrous sulfate daily, at the beginning of treatment and then gradually increasing the daily amount until the patient is receiving 1·5 to 2·0 Gm. of ferrous sulfate each day. This medication should be taken following meals or with meals. Parenteral administration is not advisable and is actually hazardous. As little as 70 mg. of iron by intramuscular injection has been found to cause, in addition to nausea and vomiting, acute vascular collapse. The occasional patient who cannot (those with intestinal irritation or a colostomy or will not take iron by mouth is best treated by a blood transfusion. The full therapeutic dose of iron is being given when, in that individual, reticulocytosis occurs and the hemoglobin regenerates at a rate of about 0·07 to 0·18 Gm. per 100 cc. of blood daily. At the present time there appears to be no advantage in combining copper, vitamins, extracts of liver or stomach, or molybdenum with medicinal iron. In cases of the hereditary anemia known as "Cooley's anemia" or "Mediterranean disease," the microcytic hypochromic anemia is not due to an iron deficiency and will not respond to iron therapy. Transfusion is the only effective therapy.

The so-called "physiological" anemia of pregnancy in which the erythrocytes are of normal size, the hemoglobin concentration is normal, and in which the blood hemoglobin concentration does not fall below 10 Gm. per 100 cc., is thought to be caused by an increase in plasma volume and needs no specific therapy. Following acute hemorrhage an anemia of the normocytic normochromic type may be found, and therapy consists of the administration of iron for the purpose of replenishing the body stores. The hemolytic anemias show erythrocytes of either normal or increased size, with a normal cellular concentration of hemoglobin. Another distinguishing feature is the increase in the number of reticulocytes constantly present in the peripheral blood. Splenectomy reduces the severity of the hemolytic process in familial hemolytic anemia and ordinarily provides clinical improvement. When the severity or rapid progress of the hemolytic process produces dangerously low levels of blood hemoglobin (5 to 6 Gm. per 100 cc. of blood), transfusions of red blood cells separated from their plasma rather than whole blood are absolutely essential. In serious systemic diseases, normocytic normochromic and microcytic normochromic anemias are found. These anemias are thought to be caused by a "toxic depression" of bone marrow activity. Transfusion of red blood cells are useful but efforts must be made to find and remedy the underlying cause of the decreased activity of the bone marrow.

The most common form of macrocytic anemia is Addisonian pernicious anemia. Highly purified liver extracts have been found to be just as effective as crude extracts in controlling the neurologic and hematologic symptoms. Moreover, the 15 units per cc. concentrate is better tolerated than the larger volume of crude extracts. A patient in relapse with pernicious anemia should be given 15 units of liver extract daily for ten days. Thereafter for a period of two months, he should be given 30 units per week, in a single injection. At the end of this time the condition can usually be controlled by a single injection of 15 or 30 units of liver extract once monthly. The efficacy of the liver extract therapy as well as the accuracy of the diagnosis of pernicious anemia can be demonstrated by obtaining a reticulocyte response five to ten days after the institution of treatment. Reactions to liver extract by intramuscular injection occur only occasionally, and these reactions have no constancy. Occasionally severe symptoms, dyspnea, tachycardia, a fall in blood pressure, substernal oppression, sweating, angioneurotic edema, eosinophilia or asthma are seen, but no fatalities have been reported. The usual reaction is urticaria. Adrenalin, 1 to 5 minims, may be given by subcutaneous injection. If desensitization is unsuccessful, the use of folic acid offers a solution. One is justified in suspecting the onset of some other disease process or complication (often a neoplasm of the gastro-intestinal tract) when a patient who has shown a clinical response to liver extract, relapses during regular and adequate parenteral liver extract therapy. Because of the high incidence of carcinoma of the stomach in patients with pernicious anemia as compared with the general population, thorough radiographic examination of the upper gastro-intestinal tract at least once a year is recommended for all patients with pernicious anemia. When a fatty state of the liver or bone marrow is present, either choline chloride or substances containing choline should be used to supplement the liver extract, in order that the patient may have the benefit of the lipotropic action of choline. The value of the Lactobacillus casei factor ("folic acid") in the control of pernicious anemia is still uncertain, but the synthetic L. casei factor is the most valuable agent which has been used in treating the anemia of sprue.

Although most of the patients with the macrocytic anemia of extreme nutritional deficiency and the pernicious anemia of pregnancy (free hydrochloric acid is usually found in the gastric secretions of these patients) respond well to the parenteral injection of purified liver extract, some have been found to respond only to large amounts of crude liver extract, administered either orally or parenterally, while others responded only to the oral administration of crude liver extract. Macrocytic anemia which develops with advanced cirrhosis of the liver responds in a limited manner to purified liver extract, and occasionally a further response may be elicited by the oral administration of crude liver extract.—*Quarterly Review of Medicine.*

Hemolytic streptococcic and nonstreptococcic diseases of the respiratory tract.—Lowell A. Rantz, San Francisco, Calif., Paul J. Boisvert, New Haven, Conn., and Wesley W. Spink, Minneapolis, Minn. *Arch. Int. Med.* 78:369-16, October 1946.

A large number of men admitted to an Army hospital suffering from respiratory infection were studied by clinical, clinicopathologic, bacteriologic and immunologic technics. Hemolytic streptococcal infection of the respiratory tract was a febrile illness usually of acute onset and associated with the expected manifestations of such disorders, including chills, headache, generalized aching, and variable degrees of prostration. Many cases were excluded by the artificial method of selection, which required the presence of fever as an indication for hospitalization, and it must be borne in mind that mild and unapparent infections are extremely common. The characteristic symptom was sore throat which was rarely absent and ordinarily severe. Cough and coryza were often present but usually not prominent complaints. The rarity of occurrence of hoarseness was notable.

Clinically typical hemolytic streptococcal sore throat was observed most frequently in men in whom the tonsils were intact, and was characterized by varying amounts of tonsillar and pharyngeal exudate, and varying degrees of redness and edema of the pharyngeal tissues. In addition, tender anterior cervical adenitis was nearly always noted. The concatenation of these signs permits the diagnosis of infection by streptococci with a high degree of accuracy, even without bacteriologic study of the throat flora.

A large number of cases remained, however, in which diagnosis was more difficult since certain of these signs, particularly exudate, were absent. This was especially so if the tonsils had been removed. No difficulty arose if marked pharyngeal edema was observed in such cases, but there were approximately 10 per cent of the whole group of proved streptococcal infection in whom no, or only minimal, swelling of the throat could be discerned. In such persons the presence of tender lymph nodes in the neck, abnormal redness of the throat, and large number of hemolytic streptococci in the nasopharyngeal flora permit reasonably accurate differentiation from other types of respiratory infection. A certain number of adult patients with respiratory infections will always be discovered in whom a definite diagnosis cannot be made on clinical grounds, even though large numbers of Group A streptococci are recovered from the throat. Moderate to large numbers of Group A hemolytic streptococci were discovered in the throat flora of nearly all of these examples of proved infection. These

organisms frequently appeared to be present in almost pure culture.

The total number of white blood cells and the erythrocyte sedimentation rate were usually increased in hemolytic streptococcal sore throat, but both values were, unfortunately, often within normal limits in the cases presenting difficult problems in diagnosis.

Nonstreptococcal respiratory disease was typically a disorder associated with cough and often with hoarseness. Physical examination usually revealed nearly normal nasopharyngeal tissues. Exudate, edema, and abnormal redness were present to a minimal degree or were absent. Tender anterior cervical glands were rarely observed. A total leukocyte count of less than 13,000 per cm. and a normal, or only moderately elevated erythrocyte sedimentation rate were observed. The characteristic features permitted the satisfactory identification of at least 90 per cent of all cases of nonstreptococcal infections. The others presented a more difficult problem.

Typical exudative tonsillitis occurred in a small number of men in the absence of hemolytic streptococci in the nasopharyngeal flora or of an antistreptococcal antibody response. In others, edema, abnormal redness and tender adenitis were discovered. If group A hemolytic streptococci were not recovered from the throat, these cases could be readily differentiated. Hemolytic streptococci were, however, often discovered in the nasopharyngeal flora of men with nonstreptococcal respiratory infections because these organisms were harbored in the throats of from 5 to 20 per cent of the various camp population groups.

When the "virus type" infection supervened in one of these carriers and presented typical clinical features, the diagnosis could be made with only small risk of error, particularly if streptococci were present in small numbers. When signs and symptoms were those usually seen in streptococcal disease and hemolytic streptococci were isolated in relatively large numbers, a satisfactory differentiation could not be made. This situation has been shown to have prevailed in from 1 to 2 per cent of all instances of nonstreptococcal disease.—*Quarterly Review of Medicine*.

SURGERY

Irradiation therapy of inflammation.—Inflammatory diseases of infectious etiology are to-day treated with increasing effectiveness by antibiotics and chemical agents. A considerable variety of organisms is susceptible to their action, in varying degrees. For those infections in which the organism is more or less resistant to these agents, and for the many inflammatory processes of noninfectious origin, rœntgen therapy is a valuable means of attack alone or as adjuvant to surgical and drug therapy. There are no known contraindications to the use of rœntgen rays in infectious diseases, nor any incompatibilities with the chemotherapeutic and antibiotic agents.

It may be well to point out the harmlessness of rœntgen radiations when administered with due regard for the duration of the inflammatory disease, and with proper dosage, fractionation, and spacing. The anti-inflammatory dosage is a very small fraction of the cancericidal dosage of rœntgen radiation, and none of the occasionally unpleasant side-effects of the latter is, therefore, seen. As a rule, the more acute the process, the smaller is the therapeutic dose employed and the more rapid is the response with either resolution or early fluctuation. Other factors influencing the quantity of irradiation are the site of pathologic disturbance, the type of surrounding tissues, ease of drainage, and the degree of regional vascularity. The quality of radiation is a matter of judgment by the radiologist and must vary with the depth of the disease being treated.

In therapy of infections, the nonspecific action of the rœntgen rays is often an actual advantage. Their effect is to aid rapid localization and lysis of leukocytes in the inflamed area under treatment. An intense concentration of antibacterial enzymes, and possibly antibodies, is released, thereby affecting a wide range of organisms. The action in noninfectious inflammation is apparently caused by stimulation of absorption of the inflammatory elements locally, probably caused by stimulation of absorption of the inflammatory elements locally, probably due to favorable alterations in the vascular bed.

The wide variety of non-neoplastic conditions which can be affected favorably by irradiation is well attested in the literature and borne out in the experience of the qualified physician who practises therapeutic radiology. The amenable diseases range from such acute infections as parotitis, mastitis, erysipelas, mastoiditis, carbuncles, and deeper-seated infections to the more chronic conditions caused by virus or of unknown origin, such as the spondylitis of Marie-Strumpell, herpes zoster, "virus" radiculitis, tuberculous adenitis (including the abdominal type), and the diphtheria carrier state. There is evidence to indicate that radiation therapy causes a definite decrease in length and severity of the morbidity in atypical pneumonia of presumed virus etiology. In gas gangrene, too, radiation therapy has been used with gratifying effect in reduction of morbidity and mortality, fortifying the effect of sulfonamides and penicillin. A recent report of the development of B. welchii infection at the site of long continued injection of penicillin may indicate an inherent or acquired resistance of at least some strains of the organism to that agent.

Another field of usefulness in radiation therapy is the group of nonspecific and post-traumatic arthropathies and peri-arthropathies, including such disabling affections as peritendinitis (with and without calcification), bursitis, and some of the arthritides of the spinal and peripheral joints. Complete relief may be afforded, or at least a degree of relief from pain and spasm to a point where orthopedic corrective measures may be effectively adopted.

A claim for 100 per cent effectiveness for radiation therapy in all inflammatory conditions can no more be made than for any other therapeutic agent. However, the proven merit of this means of treatment, its ease of application, its availability in skilled hands in most populated centers to-day, and its usefulness even as a supportive measure with other agents indicate that it be more widely employed.—Martin Schneider, M.D. in *Texas Medical Journal*.

Treatment of varicose ulcers with silver-coated adhesive tape.—A piece of adhesive tape—for larger ulcers strips of adhesive tape—slightly larger than the ulcer, is pressed on to silver foil, with sticks of the tape. The silver foil is then cut along the edges of the adhesive tape, and the silver-coated tape is placed over the sore. It is reinforced with more layers of plain adhesive tape to exert the necessary pressure. For ulcers with much discharge I cover the surrounding skin with paste or zinc oxide (as done by Isaak) or with petrolatum. The adhesive tape is covered with a gauze pad and absorbent cotton and kept in place by means of a tight bandage. The leg up to the knee is supported by an elastic bandage (Tensor bandage).

It is well known that the genuine metallic silver has a bactericidal effect. Laboratory tests with the silver foil I used did not show any bacterial growth.

Slight maceration of the skin by the discharge which occasionally occurs is easily controlled with wet dressings, preferably with a silver nitrate solution (1:1,000), applied for a twenty-four hour period.

This method may be useful not only in the treatment of varicose ulcers, but also for the stimulation of growth of granulation tissue and of epithelial cells in slowly-healing wounds.—Eritz B. Reif, *Archives of Dermatology and Syphilology*.—*G.P.*

Chronic right iliac fossa pain.—Mr. S. H. Wass (*Guy's Hospital Gazette*. Feb. 15, '47) states that apart from the appendix there are certain causes of chronic pain in the right iliac fossa. These are: (1) Inguinal or femoral hernia. (2) Chronic inflammatory lesions of the inguinal glands. (3) Mesentric adenitis. (4) Regional ileitis. (5) Cæcal distension. (6) Loading of the cæcum associated with constipation. (7) Spasm of the cæcum. (8) Cancer of the cæcum. (9) Pyelitis, stone in the ureter and hydronephrosis. (10) Chronic (tuberculous) psoas abscess. (11) Certain gynæcological conditions. (12) Functional conditions. As regards "chronic appendix," there are three conditions in which appendicectomy is the correct treatment, namely recurrent subacute appendicitis, recurrent appendicular colic and "chronic appendicitis" occurring as a sequal to either of these conditions. "Chronic appendicitis," however, is not to be regarded as a cause of persistent pain in the right iliac fossa in the absence of a history of definite attacks of pain in the past. In appendicitis cases too much reliance should not be placed on an X-ray examination. Failure of the appendix to be visualised in the barium examination does not mean that it is pathological. Sixty per cent of appendices lie behind the cæcum and when the latter is filled with barium the retrocæcal appendix obviously is invisible. Irregular filling of the appendix, kinking, or apparent fixation during the screening are not definite evidence that the appendix is diseased.—*Medical World*.

Multiple myeloma.—Drs. Bayrd and Heck (*The Journal of the American Medical Association*, January 18, 1947) review eighty-three proved cases of this tumour. Pain is the outstanding feature, and the two regions most frequently involved are the thorax and lumbar spinal segment. It is steadily progressive. It is almost always exaggerated by exertion, coughing and sneezing and alleviated by rest. Associated with pain there is occasionally noted a striking, exquisite, yet superficial tenderness. It may be due to local fragility of bone. Pathological fracture sometimes occurs. Paraplegia may develop, and then the prognosis becomes grave. Abnormal hæmorrhage may occur, chiefly from the nose and gums. There may be tumour formation in the clavicle, skull, humerus, ribs, sacrum or sternum. On X-ray examination, discrete osteolytic regions in the skeleton of an adult, especially when multiple, are almost presumptive evidence of multiple myeloma. Bence-Jones protein is the most significant of the laboratory findings in cases of this disease, although it occurs in other conditions as well. Anæmia is one of the frequently recurring features. In many cases an early diagnosis of nephritis is made and many more patients manifest renal impairment at some stage of the disease. In some cases uræmia is the terminal event. This disease is represented by a single cell type arising from the reticuloendothelial system. It is uniformly malignant and usually rapid condition. Sternal aspiration is probably the best method of confirmatory diagnosis. Thus far there is no effective method of treatment.—*Medical World*.

Carcinoma of the bronchus.—Dr. W. F. Nicholson (*The Medical Press*, March 26, 1947) states that cancer of the lung is increasing. This may be because of its more frequent recognition, but there is evidence to prove that there is a real increase in its

frequency. It appears to be about four times as common in males than in females. It is most usually encountered after the age of forty, but cases are met with at an even earlier age than that. As regards ætiology, no definite conclusion has so far been arrived at. There must probably be some chronic irritation of the respiratory system. Some of the alleged causes are influenza, cigarette-smoking and gases from petrol engines, but so far statistics are lacking to incriminate any of these. It is now generally maintained that all lung cancers are derived from bronchial epithelium, probably from the basal cells. To make an early diagnosis is difficult, as many cases have little or no disturbance at first. The only early sign may be lassitude. The two most common symptoms are cough and hæmoptysis. There may be the signs of an unresolved pneumonia present. Dyspnœa depends on the amount of pulmonary collapse, or it may be due to pleural effusion. Pain is a late symptom. Bronchoscopy is the safest method of diagnosis. A worrying cough for which no cause is apparent should always make one suspicious, and in such cases the possibility of lung cancer must not be overlooked.—*Medical World*.

Prostatic obstruction.—W. D. Doherty, M. ch., *Guy's Hospital Gazette*. Feb. 20, '46.

The causes of prostatic enlargement which may give rise to obstruction may be:—

1. Inflammation—A. Acute; B. Chronic.
2. Simple hypertrophy.
3. Carcinoma of the prostate.

A. *Acute inflammation* of the prostate gland may occur as an ascending infection in the course of an inflammatory lesion of the urethra. This may be the cause of acute urinary retention during an attack of gonococcal urethritis; on the other hand, acute prostatitis going on to abscess formation may be a blood-borne infection.

B. *Chronic prostatitis* may result from an acute infection which has never been quite eradicated, or it may follow infection by an organism of low virulence. In either case it is very common for calcium salts to be deposited in the gland with the formation of prostatic calculi. The irritation of the calculi, from time to time, causes a flare up of the prostatic infection with resulting obstruction. In addition, the surrounding fibrosis gradually contracts and narrows the bladder outlet.

2. *Simple hypertrophy* of the prostate gland is the commonest cause of urinary obstruction. Under this heading we will include the so-called adenomatous enlargement, in fact, all the types grouped together under the heading of senile prostate enlargement, although they may come on long before senility makes its appearance in other parts of the body.

It is the normal routine for the prostate gland to atrophy in old age, but in something like 30 per cent of men the gland undergoes enlargement instead, which is generally progressive at varying rates. Probably 15 per cent of men get obstructive symptoms. It is therefore a very common pathological lesion.

3. *Carcinoma of the prostate gland* is unfortunately, a common disease. About one-fifth of the cases with symptoms of prostatic obstruction which come to out-patient clinics will be found to have malignant disease.

Carcinoma of the prostate gland does not, however, always give rise to obstruction. Sometimes the patient presents himself with secondary deposits, commonly in bone, without any urinary symptoms at all. This is one of the reasons why a routine examination per rectum is so important in all surgical conditions.

Nature reacts in the same way to obstruction in one of the vital passages in the body, be it in the vascular system, the alimentary, respiratory, or urinary tract. First of all there is hypertrophy of the muscular wall of the passage above the seat of the obstruction, so that the contents are forced through the narrow portion. If the obstruction is a progressive one there comes a time when the hypertrophy can increase no further and the effects of the obstruction become manifest—namely, there is a damming back of the contents with dilatation of the passage above the obstruction, the passage does not completely empty and eventually does not empty itself at all, becoming completely obstructed.

The bladder may be considered as part of the passage through which the urine passes on its way from the kidneys to the exterior.

Stage 1.—Complete compensatory hypertrophy.

Stage 2.—Commencing failure of compensation.

Stage 3.—Complete failure of compensation.

Stage 1. In this stage there is a gross hypertrophy of the bladder, but the bladder completely empties itself at each act of micturition. The bladder wall will be found to be thickened, the muscle bundles standing out clearly underneath the mucous membrane. There are no pathological changes to be seen in the upper urinary tract, the kidney pelves and ureters emptying normally.

The *symptoms* at this stage will be due to the loss of elasticity and capacity of the bladder due to the hypertrophy. Hence frequently, urgency and diminishing stream with slowness in initiating the act.

If during this stage the patient should get a gross prostatic congestion from sexual excitement or an over-full bladder he may get a sudden and complete obstruction, acute retention, which, when relieved by catheterisation, leaves him as he was before, with a compensated obstruction.

Stage 2.—In this stage of commencing failure of compensation, the most striking change is that the bladder fails to empty itself at each act of micturition and the patient begins to get *residual* urine left in the bladder.

The whole bladder wall begins to lose tone and dilate, or else the mucous membrane tends to herniate between the muscle bundles, producing *diverticula*.

The effects of the obstruction begin to become manifest in the upper urinary tract and the muscle fibres in the wall of the pelvis of the kidney and ureter hypertrophy in order to empty themselves into the bladder.

Another complication which may occur is stone formation—in the stagnant residue in the bladder or, later in, the pelvis of the kidney.

The symptoms during this stage are sometimes less marked than in Stage 1. The loss of tone in the bladder musculature may make for less frequency and urgency of micturition, so that the patient thinks he is better. There is no sign of any renal failure, and blood chemistry will be normal.

As before, an attack of acute retention may occur at any time and can be relieved by catheterisation.

The diagnosis is made by intravenous cystography, which shows the bladder dilatation and possibly diverticula. It also shows the presence of residual urine with some measure of the amount.

Stage 3.—This is the stage of complete failure of compensation. The bladder becomes grossly dilatated with a large volume of residual urine. The kidney pelvis and ureters are unable to empty themselves into the overdistended bladder, so that bilateral hydroureter and hydronephrosis results. The pressure of the urine in the hydronephrosis causes ischæmia of the renal parenchymia with resulting atrophy.

The condition is one of chronic urinary retention. The bladder is distended often to the umbilicus, but is quite painless, in contradistinction to the acute retention, which is painful.

The patient has gross frequency which goes on to incontinence. This generally first makes its appearance during sleep; in fact, an elderly man complaining of nocturnal incontinence is almost certainly suffering from chronic urinary retention.

There will also be signs and symptoms of renal failure, evidenced chiefly by cardiac and circulatory incompetence. The diagnosis is not difficult so long as the distended bladder is not missed by the examining hand.

Intravenous pyelography and cystography is contra-indicated, and, in fact, will be of no value, as the failing kidneys will not concentrate the dye.

Treatment of prostatic obstruction.—This must be briefly outlined. The inflammatory conditions must be treated on general lines with sulphonamides, draining of abscesses, etc. The presence of prostatic calculi may require a prostatectomy to eradicate them.

Carcinoma should be treated with stilbestrol 5 gm. daily by mouth and, in most cases, obstructive symptoms will be relieved.

Senile enlargement calls for different treatment in its three stages.

Stage 1.—This is the ideal case for a one-stage prostatectomy by whichever route the surgeon favours.

He will tell the patient that the condition is a progressive one, that he can have an operation now and be healed and about again in three weeks' time with a minimum of risk. Whereas, if he waits until a later stage, both the length of time and the risks of the operation will increase.

Stage 2.—A patient in this stage may again be subjected to a one-stage operation, but complicating factors such as diverticula or stones may call for a two-stage procedure.

Stage 3.—This is the dangerous stage owing to the renal and circulatory failure.

The bladder should be drained, preferably by a supra-pubic tube and the pressure let off slowly, to minimise the hæmorrhage which frequently occurs into kidneys and bladder as the pressure is reduced.

The drainage must continue until the renal and circulatory failure has been stabilised. It will seldom return to normal, but, once it has reached a stable level, these elderly patients stand a prostatectomy very well, and it is not often that they are forced to remain with a permanent supra-pubic tube.—*G.P.*

Carcinoma of the prostate gland, diethylstilboestrol or orchiectomy. (Carl A. Wattenberg, in *Journal of the Missouri Med. Assn.* Aug. '46.

Either diethylstilboestrol or bilateral orchiectomy or both should be used in every case. The oral dosage of diethylstilboestrol varies from one-third mg. to 10 mgs. a day, the dose depending on the patient's response and on the side effects caused by the diethylstilboestrol. Orchiectomy is advised when the patient has signs of metastasis, the serum acid phosphatase is high, the prostatic tumour is enlarging while the patient is taking sufficient doses of diethylstilboestrol, or the patient does not tolerate full dosage of diethylstilboestrol. The diethylstilboestrol without orchiectomy is given to patients without known metastasis or to patients who refuse orchiectomy. Diethylstilboestrol can be given even though the patient has had an orchiectomy, but a smaller dose is needed to control pain and tumour growth.

Many patients who have an active secretory factor, that is, an elevated serum acid phosphatase and then have the testicle substance removed, will have a lowered serum acid phosphatase level. But sooner or later this value will increase again. This increased value means continued or increased secretory function. This small dose of diethylstilboestrol will keep the secretory

function down which, in turn, helps control the growth factor.

There are certain benefits obtained from both diethylstilboestrol and castration. These induce a *softening* of the prostate gland carcinoma with a regression in its size. I have had a few cases with large, irregular, hard and fixed prostatic cancers, the cancers causing *obstruction* to complete urination. The bladder is distended in some cases to the umbilicus, and each voiding results in only a small amount of urine with no infection being found on methylene blue stain of the centrifuged urine. In these cases I have tried not to use a catheter or a urethral instrument so as not to infect the urine. Rather, I have given full dosages of diethylstilboestrol or have performed a castration, or both. After such treatment the cancerous gland rapidly regresses in many cases and allows a free easy urination. Soon the patient empties his bladder completely and never becomes infected by catheter or instrument.

Roentgen ray therapy is of great value in treating carcinoma of the prostate gland. This treatment is of considerable help when the tumour already has spread to the pelvic bones or bladder wall itself. The roentgen ray probably never has cured a cancer of the prostate gland, but it has retarded growth. Less roentgen ray therapy is necessary now, when used along with hormone treatment or castration.

There are certain reactions or side effects which can occur during the giving of diethylstilboestrol. Seldom does one see a patient who has nausea, vomiting, dizziness or headaches from oral diethylstilboestrol. If this does occur, it usually occurs even though a very small dose was given. Many of the patients have enlarged and painful breasts. They are not serious except for the discomfort which often causes the patient to stop the diethylstilboestrol or decrease the dosage of the drug to too low a value.

Oedema of the lower extremities, and occasionally of the penis and scrotum, also occurs as a side effect or reaction during the giving of an oestrogen or diethylstilboestrol. The oedema is due to a decreased renal excretion of sodium and chloride which, in turn, keeps water in the tissues with a reduction in urine volume, causing dependent oedema.

Large doses of diethylstilboestrol may bring about liver changes which may cause a "toxic hepatitis" and jaundice. This toxic change can be guarded against by a nutritive diet and vitamins since the hepatitis is the result of a change in the glycogen storage in the hepatic cell.—*G. P.*

OBSTETRICS and GYNÆCOLOGY

Neonatal jaundice and hæmomlogic disease of the newborn.—W. R. F. Collis, M.A., M.D., (Cantab), F.R.C.P., F.R.C.P.I., D.P.H.

CLASSIFICATION OF NEONATAL JAUNDICE :—*Anatomical* :—Congenital deformity of the bile passages.

Physiological :—Occurring in some 30 per cent of babies.

Infective :—Acute—septic—usually from infected umbilicus; chronic—syphilis.

Hæmolytic :—Hæmolytic disease.

A Choluric :—*Family jaundice.*

Anatomical :—The infant is usually normal at birth and the jaundice may not become marked till the end of the second week. The urine becomes deeply bile-stained and the faeces pale or clay coloured. Death from wasting or hæmorrhage eventually takes place, though we have seen cases last as long as six months. Treatment is unavailing.

Physiological :—The cause of this condition is not altogether understood, but is generally considered to be bound up with physiological balance of blood before and after birth. The hæmolysis which takes place causing a degree of jaundice, while the urine becomes deeply stained. The babies sometimes become sleepy and are difficult to feed and run a slight temperature, but the mucous membranes remain a good colour. No treatment is necessary except attention to the total fluid intake in especially sleepy cases.

Infective (Acute) :—Acute septic infection with pyogenic organisms through the umbilical stump is very rare in good obstetrics but may occur occasionally unless the strictest aseptic technique in the dressing of the cord is followed as a routine. The infection usually first appears as a cellulitis around the umbilicus, the tissues becoming red, swollen and oedematous and later spreading up the umbilical vein to cause acute hepatitis, sometimes with multiple liver abscess formation.

Prompt treatment both locally and generally with sulphonamide or penicillin or both will often prove effective nowadays if the condition has not been allowed to go too far. Before the introduction of these therapeutic agents, rapid death was the rule.

Chronic :—The jaundice occurring with congenital syphilis is due to a pericellular cirrhosis of the liver. Its development is gradual, and is associated with other manifestations of the disease, particularly wasting.

Haemolytic Disease (erythroblastosis, icterus gravis neonatorum).—In general terms it may be described as due to an incompatibility of the mother's and father's bloods. If the fœtus has the same blood as the father in such a case, the mother may produce an antibody (a poison, in this case a *hæmolysing* substance) which, if the placenta becomes permeable to it, may enter the baby's blood and cause the latter to be hæmolysed. If the process starts early on in pregnancy the baby will be born dead, usually macerated with a swollen abdomen containing fluid—a condition which was termed *hydrops fœtalis* before its cause was known. If the process starts late, or just before the mother's confinement, jaundice may not develop till a few hours after birth. At first the jaundice may resemble that in a case of severe physiological jaundice, but it rapidly becomes deeper and yellower as the corpuscles are hæmolysed and anæmia develops. Unless treated, many cases die within the first few weeks of life, often before the end of the first week. Milder cases, where only a small quantity of the poisonous factor has passed into the baby's circulation, sometimes recover spontaneously.

Symptoms:—As we have said, the most prominent symptom is rapidly-developing jaundice; next the baby wastes, goes off its feed, and eventually collapses and dies.

Diagnosis:—The diagnosis is made in the laboratory by an examination of the baby's blood, which usually shows an erythroblastosis (a pouring out of immature blood cells, so that the film will show many nucleated red blood corpuscles and immature white blood corpuscles), and if the mother's and father's bloods are examined the father will be found to be rhesus positive and the mother rhesus negative. The hæmolytic factor can also be demonstrated in the maternal blood.

Complications:—Blood-forming centres spring up in the baby's liver, muscles and spleen. This may lead later to fibrosis (cirrhosis) of the liver. Again, degeneration of certain areas of the brain, particularly the lenticular nucleus, is not at all uncommon. Mental deficiency is also not an uncommon sequela in hæmolytic disease.

Treatment.—Transfusion of the baby at the earliest possible moment with blood from a rhesus negative type IV donor is specific for the condition. In severe cases it will have to be repeated on several occasions. As large transfusions as possible should be given (*e.g.* 20 c.c. per 1 lb. body weight), though the first transfusion should always be small—10 c.c. per lb. Liver extract should also be given to stimulate the baby's own bone marrow to maintain natural blood formation, as repeated transfusion has a somewhat sedative effect on the bone marrow, and a condition akin to aplastic anæmia is apt to occur. Great care over the baby's feeding will be necessary, as many are weakly and disinclined to suck. Some authorities state that the breast milk from the child's own mother is contra-indicated as it may contain the poisonous factor.

A choluric of family jaundice:—This is a form of jaundice which occurs irregularly in certain families. It consists of bouts of hæmolysis of the individual's red blood corpuscles associated with enlargement of the liver and spleen. It is extremely uncommon and rarely seen during the neonatal period.

Haemomlogic disease:—This condition must not be confused with hæmolytic disease described above. It has a distinct etiology, being due to lack of prothrombin in the infant's blood at birth, due in its turn to lack of vitamin K in the mother's diet during the latter part of pregnancy.

The condition is characterized by hæmorrhage: hæmaturia, mælena, hæmoptysis, hæmstemisis, vaginal hæmorrhage, purpura, etc. Perhaps most common of all it is seen as a cerebral hæmorrhage either anti-dural or patechial into the brain substance. The commonest variety is from the bowel. This may be bright red if from a site in the lower bowel, or dark or tarry, not unlike the meconeum, with which it may be mixed if it comes from higher up. If untreated, the baby may bleed to death. The remedy is specific. Give the infant a supply of prothrombin as quickly as possible. The correct procedure is to withdraw 10 c.c. of blood from the father, or for that matter any other adult, except the mother, who may be present, and inject this into the baby's buttock, repeating the process if necessary in six hours, if the bleeding has not altogether stopped. A second dose is usually a wise precaution.

The condition should never be allowed to occur now, as all mothers whose diet may have been deficient, either through poverty or one of the toxæmines of pregnancy, should be given an injection of vitamin K before the confinement.

Vitamin K, particularly in the aqueous form, is also of value in treatment and should be given along with the blood to the baby to stimulate its own prothrombin formation.

When hæmomlogic disease occurs in a baby, it is wise to give the mother an injection of vitamin K as prophylaxis against subsequent postpartum hæmorrhage.—*Medical World.*

DERMATOLOGY

The treatment of skin disease with intramuscular penicillin—(R. R. Wilcox and R. Nutt, *M. Press*, July 24, 1946).—The results of treating 54 cases of skin disease in the British Army by intramuscular penicillin are reported. Usually 1,200,000 units in 30 round-the-clock injections at three-hour intervals were administered. Excellent results were obtained in 11 cases of septic scabies, which were discharged from hospital after an average of 7·2 days instead of the usual 14. Seven cases of boils, furunculosis and carbuncles also were cleared rapidly, the average stay in hospital being seven days; seborrhœic dermatitis, where that complication was present, was not affected. Intramuscular penicillin also proved valuable in echthyma, gumma, erysipeloid, cellulitis and lymphangitis.

Penicillin treatment was useful in clearing

secondary infection in seven cases of eczema, and sensitization eruptions, probably being the quickest way of rendering the lesions aseptic and safer than the sulphonamides, but is considered a failure with regard to the basic eczematous conditions. Likewise, some improvement from removal of all sepsis was noted in cases of infected pompholyx, infected seborrhoeic sycosis and infected tinea, though the basic lesions were unaffected. In addition, penicillin parenterally proved to be of no benefit in healing the basic lesions of seborrhoeic dermatitis, scabies, acne vulgaris, condylomata acuminata, psoriasis and lichen planus.

No ill-effects occured as a result of the treatment except for two cases of giant urticaria and angioneurotic oedema. It is important to avoid masking a syphilitic infection.—*G.P.*

Correspondence

The simple treatment adopted for warts.

To The Editors, THE ANTISEPTIC, Madras.

Sirs,

Case No. 1.—Male, healthy, aged 18, warts in both hands and legs, over 60 in number, ugly looking due to warts in the body. Treatment given. Alkaline mixtures and Iron tonic internally. Application;

Red Mercuric Iodide	...	gr. i
Acid Salicylic	...	gr. lx
Spirit Rect	...	ʒ ii

The above treatment continued for over one month and all warts disappeared by falling one after one.

Case No. 2.—Girl, aged 8, full of warts in the hand and rapidly appearing daily. Treatment adopted: lime juice with water to drink daily over three cups. Treatment continued for six months without any medicine. All the warts disappeared one after the other in the course of time.

Case No. 3.—Male, 46 years old, one appeared in the face. Being ugly looking he removed it by tightening the same with a hair. After 7 days over twenty warts appeared in the face. Treatment adopted: Vitamin pills. (Esdavito Pearls) daily before bed and lime juice water to drink over six cups a day. Cleaned the warts daily with Rect Spirit and equal quantity of water diluted. Within 45 days' time all warts disappeared and no fresh ones.

I wish my brother doctors will try the same treatment whenever they come across and report to me

Shanthi, Galle, Ceylon. 6-11-1947. } Yours faithfully, Dr. V. R. CHANDRA, *Med. Practitioner.*

Import essential

To The Editors, THE ANTISEPTIC, Madras.

Dear Sir,

Due to shortage of foreign exchange, our National Government has rightly restricted imports from foreign. This has been true also of imports of medical appliances, surgical requisites, drugs etc.

We quite appreciate the Government position. But the Government has been pleased to allow very essential articles like machinery and raw materials for industrial purposes freely. Every well wisher of the suffering humanity will agree that the import of medical appliances—except those that are manufactured in India—should be free and unfettered. With some exceptions most of the technical requisites of the medical profession are of foreign make. These are very essential articles and form the very basis of medical diagnosis and treatment. Even in the past when there have been restrictions, these items have been assigned their due importance. Ever since the outbreak of war these articles are either not forthcoming or at least have been in short supply. Several items are not at all forthcoming, being specialities of continental manufactures. Some of the continental countries themselves look to England and U.S.A. for supply of their requirements, their own equipments having suffered considerably during the war. Due to import restrictions and constant change in policy, the articles manufactured for dealers in India are disposed of in other markets or are later supplied at much higher rates. These are not luxury articles and their imports at all times have been limited. Thus there is no question whatsoever of there being dumping or over-import. Considering all these factors, the flow of these articles should be free and not subject to serious import restrictions. Every surgeon and physician would agree with this view and lend support through this journal as well as directly to the writer.

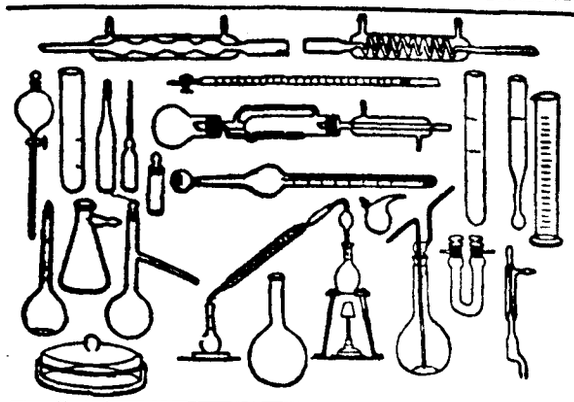
The All India Medical Conference at its recent meeting has advocated free imports of medical appliances, medicines etc.

49, Princess St., Bombay 2. 5-1-'48. } Yours Faithfully, N. C. DALAL, *Joint Honorary Secretary, Surgical Traders' Assen.*

News and Notes

The National Jewish Hospital at Denver announces a program of fellowships for postgraduate study in tuberculosis and allied diseases. Fellows will be appointed for three-month, six-month or one year periods.

Information regarding the fellowships can be obtained by writing to: Dr. Edgar Mayer, Chairman National Medical Advisory Board, National Jewish Hospital at Denver, 470, Park Avenue, New York, N. Y. or to: Dr. Allan Hurst, Medical Director, National Jewish Hospital at Denver 3800 East Colfax Avenue Denver 6, Colorado.



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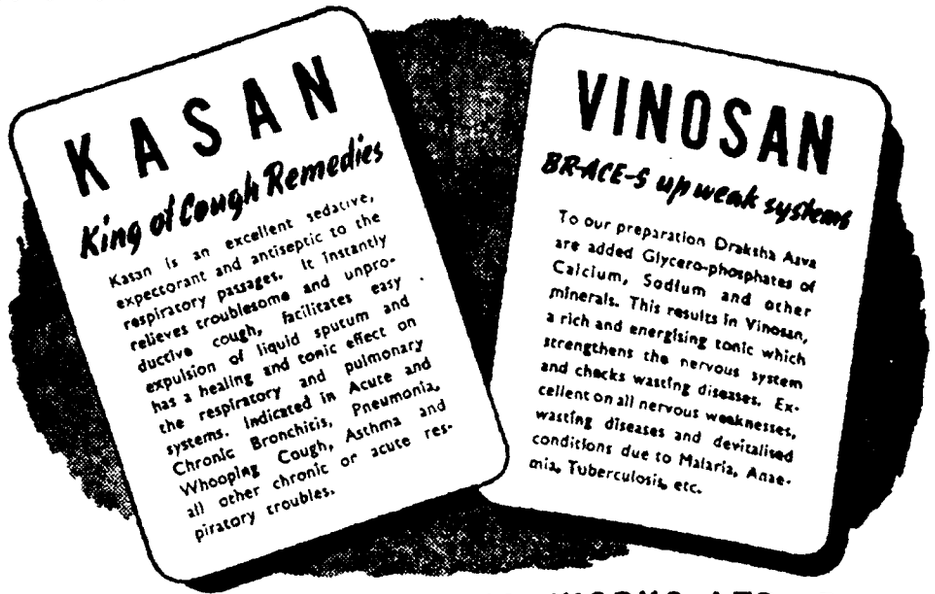

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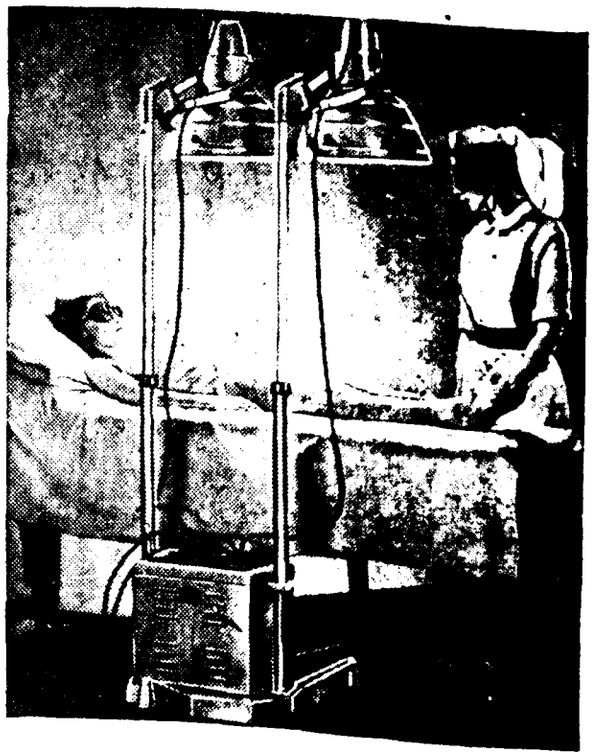

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Original Articles

A Consideration of the Deformities after Trauma*

RAO BAHADUR DR. N. S. NARASIMHA AYYAR, F.R.C.S.,

Surgeon, Government General Hospital, Madras.

Deformities arising after trauma.—Deformities after injuries arise from un-united fractures, mal-united fractures, epiphyseal injuries and unreduced dislocations.

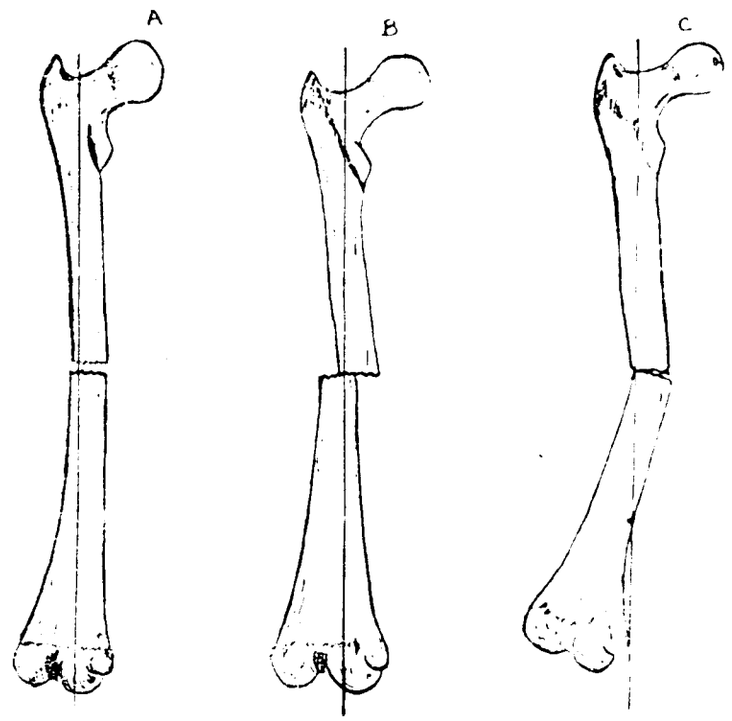
Crippling due to fractures:—Slight deformities are those which do not directly interfere with the vital functions, exercise but little influence upon the future well-being of the patients. Stiffened joints, excessive shortening and mal-union and wage earning disabilities would cause crippling. Want of efficient aftercare and of continuity of treatment is one of the important causative factors. It is inefficient treatment and neglect which transform a simple fracture to a chronic deformity. Expert supervision, simplicity of apparatus, teamwork, segregation of fractures and continued aftercare are required to prevent deformities and shortening. Every fracture should be looked upon as a potential deformity which may be traced to omissions and commissions or both; these may arise during treatment or after treatment. Function is impaired, not because of the presence of an ugly lump but because strain is present in joints above or below fractures. Mal-union of a fracture may not show itself. The external contour of a forearm may appear normal even when it hides cross union.

An end-to-end apposition of fragments is desirable (*Fig. 1 vide page 71*) but it is not essential for perfect function. The ill-effects following fractures are often due to injury to soft parts such as ischæmic contractures. An end-to-end apposition with imperfect deflection of body weight is more serious than a slight overlapping, where body weight falls in correct line. Abnormal stress will produce abnormal strain in accordance with Wolff's law.

* Specially contributed to THE ANTISEPTIC.

In all cases of fractures of the shafts of the long bones, it is important to secure a true anatomical alignment of bone so that the axis of movement of the joints at the two ends of the bone may retain its correct relative position. Many crippling deformities are due to want of recognition of this fact.

FIG. 1 End-to end apposition of fractured femur



A. End-to-end apposition with good alignment
B. Imperfect apposition with good alignment
C. End-to-end apposition with faulty alignment After ROBERT JONES.

Principles that underlie the prevention of the deformity and its correction :—Reduction of deformity and restitution of the bone and function of the limb is the aim; the better the anatomical reposition, the better the function. A critical examination of every fracture with X-rays within a week or ten days is essential to prove that the bones are in good contact and correct alignment; later than this period it becomes difficult to correct the deformities.

Angulation is easily compensated for in a fractured femur but not in a fracture of the tibia which is the only long bone limited at both ends by joints moving only in one plane. There is no compensation possible. A degree of angulation which is of little harm near the middle of a bone produces a greater defect near the articular end. Shortening is unimportant compared with angulation and rotation. Skeletal traction is the best means of securing and maintaining reduction of deformity by axial traction. Open operation is indicated in fractures involving joints as fractures of the condyle of the femur and capitellum.

Non-union can generally be avoided by ensuring (1) *absolute rest* for the normal period of completion of consolidation. The period of complete consolidation varies and in the case of the lower extremity, adequate protection should always be given to a fractured limb; (2) by ensuring proper alignment of fragments without actual loss of bony continuity or interposition of soft parts; (3) by preventing external infection; and (4) by attending to constitutional disturbances as endocrine deficiencies and acute or chronic illness.

Mal-united fracture :—A mal-united fracture cannot be cured by an operation only. The operation can only reconstruct the fracture. A satisfactory result can only occur by the maintenance of the alignment until consolidation is complete. The period required for consolidation differs with each fracture. During the period of maintenance of alignment, the muscles and other tissues should be exercised and kept efficient.

Disability following injuries of the shoulder :—Most disabilities following injuries of the shoulder are due to adhesions or to osteo-arthritis and occasionally due to nerve injuries. Inability to abduct the arm beyond the horizontal is the commonest sequel of even minor injuries to the shoulder in people over 50. This means an incapacity for most trades. An abduction splint is the best means of preventing a stiff shoulder with atrophy of the deltoid. Non-union of fractures of shaft (*Fig. 2*) of the humerus is common and can be prevented by proper immobilisation.

Disabilities after fracture of the head of the radius:—1. There is restricted movement of supination; in a case which is not recent it is better not to do anything. Myositis ossificans is common. Radiograph after two years and if there are signs of osteo-arthritis or if there is any bone formation at any part excise the head of the radius.

2. Fracture of the head of the radius is one of the common causes of loose bodies in the elbow. The fragments may be multiple. The results in a case of fracture of the head of the radius have to be assessed after 10 to 12 years. An osteo-arthritis does not cause pain unless the pain is due to injury or strain. When the patients come for the relief of pain it is really an advanced case.

Disabilities after injuries of elbow:—Injuries to the elbow can be grouped into three main varieties: (*a*) complete and incomplete supracondylar fractures; (*b*) dislocations; and (*c*) other injuries. Stiff elbow follows a fracture just above or through the joint. Failure to accurately reduce the fracture, massage, passive movements, application of an internal angular splint are common causes of stiff elbow. For internal and external condylar fractures with displacement, operation should be performed, which is done in ten days time; after six weeks displacements are better left alone.

Half of the condylar fractures occur in children. In medial condyle fractures watching of the ulnar nerve is necessary. Lateral condyle fractures leave an ugly lump on the lateral side of the elbow if not reduced; the movements of the elbow joint may be quite perfect (*Fig. 3*), but this produces a delayed traumatic ulnar neuritis. A prophylactic anterior transposition of the ulnar nerve is indicated.

Myositis ossificans (*Fig. 4 a, b, c, d,*) is a complication which has to be dreaded in the elbow. Prophylaxis must be the watchword in such

cases; gentleness in reduction of the fracture under anæsthesia must be the rule.

Volkman's ischæmic contracture is commoner in India than in any other part of the world. It is a dreaded complication and prophylactic measures ought always to be observed.

Ischæmic paralysis is a most disastrous and crippling deformity; irremediable damage may be done in as short a space of time as six hours. It is safe to assume that if the patient is not more comfortable after the fracture is set than before, there is something wrong which should be diagnosed and remedied. Full flexion of the elbow is just as dangerous as tight splinting or bandage.

All supracondylar fractures must be reduced early; the limb must not be put up in acute flexion without reduction of the fracture; all cases with œdema must be watched by admitting them into the hospital or clinic. If the œdema is not subsiding or if there is severe pain an incision three inches in length must be made on the antero-ulnar border of the forearm, thus dividing the deep fascia and decompressing the forearm structures. Pallor of the fingers is the early sign.

When once the condition has set in, in the early stages the limb is kept elevated. Bandages are loosened and an incision is made on the antero-ulnar border. It is now recognised that there is spasm of brachial artery. The brachial artery should be exposed at the bend of the elbow and above; if there is spasm the artery is resected. This should be done in six hours time. The presence of the radial pulse is no criterion at all as even with a good radial pulse contractures may arise. The early paralytic stage may be overlooked till the stage of contracture sets in The long flexor muscles of the forearm are involved and usually more severely on the ulnar than on the radial side. The paralysis comes on in 24 hours and definite contracture in a few days. The disability of Volkman's paralysis is far worse than that from a stiff or deformed elbow joint (*Fig. 5*).

Gradual extension by splinting must be continued: an excision of the elbow and muscle sliding operation like Max Page's are both practised. Max Page's operation must only be regarded as an adjustment of the treatment by splinting. By itself it is useless owing to the masses of scar tissues involving the whole forearm. After treatment with encouragement of active movements is essential. Although the outlook is not very good great improvement can be obtained.

In a Volkman's contracture the following deformities of the hand are present. The thumb is extended and adducted almost in front of the second metacarpal, hand muscles are wasted; palmar flexion, ulnar adduction and adduction of fingers are not possible.

Fractures of the head of the radius require immediate reduction and when the displacement cannot be reduced open reduction or excision of the head is indicated. The displaced head has been met with on the inner side of the joint under the median nerve. Even a small fragment may block the joint.

Fractures at the upper end of the ulna with dislocation of the head of radius:—Even in cases of unreduced dislocations, the functional result is often good; but some patients complain of weakness of elbow and limitation of flexion.

Fig. 2.

Fig. 3.

Fig. 3.

Fig. 4-a.

Fig. 2. Case of ununited fracture of the middle of the humerus fair function.

—(*Vide page 75*).

Fig. 3. Unreduced fracture of the capitellum with good movements of the elbow.

—(*Vide page 75*).

Fig. 4-b.

Fig. 4-c.

Fig. 4-a, -b, -c, -d. Myositis ossificans after dislocation of elbow.

—(*Vide page 75*).

Fig. 4-d.

Fig. 5.

Fig. 5. Hand and forearm of a case of Volkmann's ischæmic contracture. Note the shortening of forearm also.

—(*Vide page 76*).

Fig. 6. Ununited fracture of both bones of left forearm with formation of false joints with good function doing the work of a railway guard.

(*Vide page 77*).

Fig. 6.

FIG. 7. Deformity after Smith's fracture.
—(*Vide page 79.*)

FIG. 8. Ectopic bone in myositis ossificans.—(*Vide page 79.*)

FIG. 9-a.

FIG. 9-a. Mal-united fracture of the left femur with Volkmann's Contracture and shortening with the limb externally rotated and adducted.—(*Vide page 80.*)

FIG. 9-b. Deformity after fracture of the upper third of femur.
—(*Vide page 80.*)

FIG. 9-b.

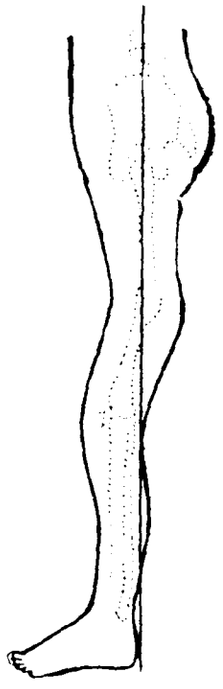


FIG. 10. Diagram to illustrate posterior sagging in mal-united fracture of the femur in the middle third.
[After ROBERT JONES.]
—(*Vide page 80.*)

FIG. 11. Deformity in fracture of the lower third of femur.
(*Vide page 80.*)

FIG. 12. Forward separation of the epiphysis of the femur.—(*Vide page 80.*)

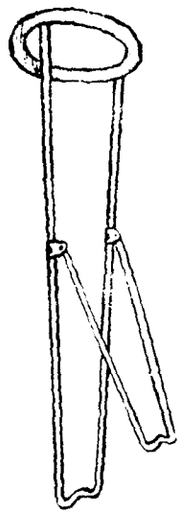


FIG. 13.

FIG. 13. Thomas's knee splint with a Pearson's attachment.
—(*Vide page 80.*)

FIG. 14. The effects of inversion of Tibia.

A. Producing bow leg and throwing body weight on outer side of foot.

B. The weight of the body is carried to the inner side preserving that foot.

After ROBERT JONES.]
—(*Vide page 81.*)

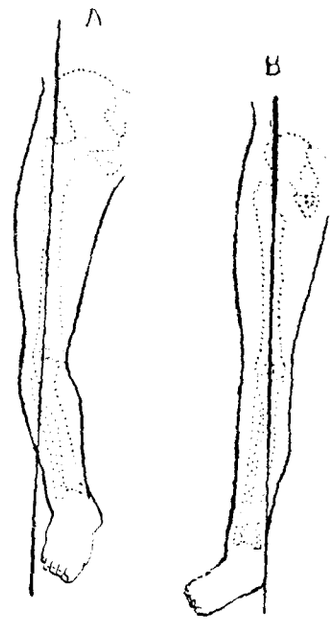


FIG. 14.

FIG. 15. Deformity after fracture of the lower third of the right leg.
—(*Vide page 81.*)

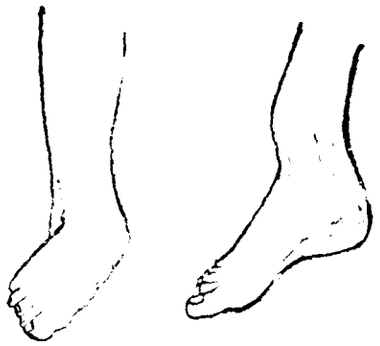


Fig. 16-a

Fig. 16-b

Figs. 16-a & -b. Malunited Pott's fracture showing (a) eversion of foot, (b) dislocation backwards of the foot. (After ROBERT JONES). Vide page 83.

Fig. 17-a. Old unreduced dislocation of elbow. (Vide page 83.)

Fig. 17-b

Fig. 17-b. Old dislocation of the Right wrist joint. Good working hand. (Vide page 83.)

Fig. 18. Result after excision of elbow after some years. (Vide page 83.)

Fig. 18

Fig. 19

(Vide page 83.)

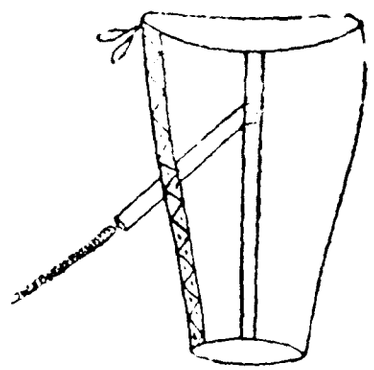


Fig. 20. Long Thomas splint. (Vide page 83.)

Injuries to the epiphyses and juxta-epiphyseal fractures :—It is difficult to prophesy the behaviour of an epiphysis; generally there is impairment of growth and shortening; occasionally there is premature synostosis; the epiphyseal cartilage does not develop well and this leads to displacements and after 10 to 15 years to osteo-arthritis.

Fractures of the shaft of the radius and ulna :—The displacement of the distal fragment of the shaft of the radius towards the ulna is common; the hand is deviated laterally and supination is lost; this sagging inwards of the radial fragment is very difficult to prevent; failing reduction under the screen, open operation to restore the normal convexity of the radius is indicated. Supination is the movement most often lost after fractures of the bones of the forearm and this should be prevented. Non-union may occur but good function is present (*Fig. 6*).

Colles s fracture is very common. It must be reduced properly, otherwise the deformity produced is obvious and intereferes with the wage-earning capacity; it is a permanently disabling condition. The patient lets things slip easily so that disability even for leisurely household work is great. There is another commonly overlooked factor and that is the importance of the inter-articular fibro-cartilage in cases of Colles's fracture. The function of the cartilage is to stabilise the inferior radio-ulnar joint. In Colles's fracture with loss of integrity of the radio-ulnar joint, the deformity may be due to: (1) rupture of the ligament itself; (2) avulsion of the ulnar styloid at its base; or (3) severe communition of the lower end of the radius with the ligament attached to a loose minor medial fragment.

DIAGNOSIS :—Diagnosis of the cartilage lesion is made by noting: (1) the loss of integrity of the wrist; (2) the bulging forward of the ulnar head on the ulnar aspect of the wrist and its abnormal mobility in relation to the radius and the hand; (3) a marked broadening of the joint; and (4) the X-ray showing fracture through the base of the ulnar styloid or separation of medial fragment of the radius.

TREATMENT :—Manipulative reduction under anæsthesia, manipulation being traction, extreme flexion and ulnar deviation; in old standing cases a leather wristlet is useful; if there is marked instability of the inferior radio-ulnar joint, an ankylosing operation will give steadiness to the wrist.

After Colles's fracture in 10 to 20% of cases there is limitation of supination; the wrist is stiff and there is tenosynovitis of the tendons of the hand; patients often complain of the unsightliness of the hand due to radial abduction; the inferior radio-ulnar joint may be lax and there may be varying degrees of subluxation; stenosing tendo-vaginitis and rupture of the extensor pollicis longus tendon or its sheath are occasionally seen. In cases where marked backward displacement and tilting of the lower end of radius persist, there is no flexion at the wrist or at metacarpo-phalangeal or inter-phalangeal joints. Backward tilting is disastrous for function. Moderate backward displacement without tilting does not cause much functional loss. An operative reduction gives satisfactory results (*Fig. 7*). Smith's fracture is very rare and should be corrected.

Subluxation of the inferior radio-ulnar joint :—A congenital subluxation is often met with and may be bilateral, from the age of 18 onwards when the mechanical strain begins to be felt according to the occupation of the individual. Patients complain of pain and weakness.

Fracture of the navicular:—Un-united fracture of the navicular may go undetected; patients of all ages with un-united fractures in spite of even light work complain of great weakness of the wrist. The main trouble is inability to dorsiflex and sometimes there is limitation of flexion at the wrist. Continued immobilisation produces union and good results: operative procedures like excision are not good: bone-grafting or drilling should be done if prolonged immobilisation fails.

Fracture of metacarpals:—In mal-united fractures of the shaft an angularity persists or the callus may adhere to a tendon giving a stiff and partly extended finger in the metacarpo-phalangeal joint. If two neighbouring metacarpals are broken they may become united together and impair the hand function. Although non-union is extremely rare it has been met with in Bennet's fracture *i.e.*, fracture dislocation of the base of the first metacarpal. If neglected, it leads to prolonged swelling of the dorsum of the hand and wrist at the base of the thumb. There is great loss of hand function. It must be remembered that the thumb is the most mobile and most valuable finger of the hand. Fractures of the first metacarpal interfere with the range of motion and thus cause severe disability. If the fracture heals with malposition, a severe osteo-arthritis of the joint with restricted movement results.

Cubitus valgus and varus:—When the forearm is fully extended and supinated the forearm bones make an angle with the humerus resulting in a convexity on the inner side of the elbow. The lateral angle is called the carrying angle because the hand is held at some distance from the body while the arm is in contact with the trunk. The carrying angle enables any object carried by the extended upper extremity to be kept clear of the body especially during walking. The angle is not apparent when the forearm is pronated. Thus a pronated hand is kept in the same line as the arm. This adds very much to the strength of a thrust or a pull. The carrying angle is caused by the obliquity of the plane of the elbow joint. The humero-ulnar joint is *oblique* whereas the humero radial joint is transverse. The inner lip of the trochlea is a ridge which is much deeper distally than anteriorly. So the ulna is deflected laterally in full extension by this ridge. The angle disappears in flexion as the ridge becomes less distinct. The carrying angle of the elbow in South India (A. ANANTHANARAYANAN) lie between 160 and 170. The angle of the right side is larger than that of left side by about 4°. The carrying angle is smaller in females on account of the greater width of the pelvis and the shortness of the upper limb.

Cubitus valgus is a condition in which the forearm is abducted at the elbow and cubitus varus is a condition in which the forearm is displaced too far to the ulnar side. The causes of these conditions are trauma, heredity and rickets. They are occasionally seen as congenital deformities and are associated with laxity of the ligament. The deformity may occur during the progressive stage of rickets but they usually disappear when the disease gets cured. The deformities often result from supra-condylar fractures in childhood and in later life.

Cubitus varus is otherwise known as gun stock deformity. It may follow an imperfectly treated supracondylar fracture. It interferes very little with function. The deformity has to be corrected by a supracondyloid osteotomy for æsthetic reasons.

Cubitus valgus may result from fracture of the external condyle of the humerus. If non-union of external condylar fracture occurs an increasing cubitus valgus deformity develops. The ulnar nerve is stretched round the inner side of the joint and a late ulnar neuritis in adult life occurs. The deformity is corrected by osteotomy of the humerus and the arm should be fixed in full extension and supination by a shoulder spica plaster bandage, the limb being elevated. An anterior transposition of the ulnar nerve is also indicated.

Myositis ossificans:—Traumatic myositis ossificans is a complication which occurs commonly after injuries to the region of the elbow joint. Heterotropic ossification occurs anywhere without injury in muscles, tendons and cartilages. Calcification of ligaments of knee and ankle after injury are met with. Calcification of external ligaments of knee due to passive movements in a gonorrhoeal arthritis is also met with. Traumatic ossification occurs in the region of the elbow in all ages and in both sexes. It may occur with no bony injury but occurs commonly after dislocation of elbow, fracture of the head of the radius and supracondylar fractures. It is not noted after fractures of the olecranon. It interferes with the free action of the elbow joint and produces a bony block. The name is a misnomer because there is no myositis and no ossification in muscles. It was believed that fragments of periosteum and osteogenic tissue escape from the bone and wandered into muscles laying down new bone in the interfibrillary and inter-muscular septa. It is now believed that new bone formation occurs within the limits of displaced periosteum and that it is the ossification of a sub-periosteal hæmetome. If displacement of the periosteum is prevented and extensive hæmatomata are not allowed to occur, the complications may be prevented. This ossification occurs in front of the elbow and is also found at the back of the elbow. It is most often seen in front of the elbow because passive stretching is often resorted to produce movement at the elbow. The joint becomes ankylosed by a bridge of bone extending from the ulna to the front of the humerus (*Fig. 8*). In an unreduced dislocation with fixation of the elbow in extension the bony mass fills up the coronoid and olecranon fossæ. The early sign observed is limitation of movement. The passive stretching which is resorted to or the devices of carrying buckets of water or sand bags or by massage makes the condition worse. A radiogram shows an opaque shadow in front of the elbow. As soon as this is recognised the patient should be warned to stop passive stretching, massage and carrying weights. So the prophylaxis of myositis ossificans after elbow injuries would be to reduce dislocations promptly with minimum force, to treat supracondylar fractures as an emergency and to reduce them correctly, to immobilise the elbow after reduction of elbow dislocations for at least 3 weeks and to restore movements of the elbow joint in a case of supracondylar fracture slowly. By the patient's own activity the elbow is lowered gradually ½ to 1 inch every day noting if there is any spasm of the biceps.

When traumatic ossification is noted the elbow is rested, allowing active movements only. The elbow is not immobilized in plaster as in olden days. The new bone may shrink and mobility may gradually improve. It is common in this country to see these patients some months after injury. Operative removal of bony masses and bridges should not be undertaken before six months. When the bone is finally consolidated if the

bony spur is the definite cause of obstruction of movement then it should be removed.

Fractures of the phalanges:—Compound fractures of the phalanges are common. Stiffness in the phalangeal joint is a constant result. In closed fractures angularity must be avoided. Active movement at the metacarpo-phalangeal joint should be practised from the beginning.

Skeletal traction:—No form of supracondylar skeletal traction is entirely safe. The method has gained a wholly undeserved popularity and has been responsible for many stiffened knee joints which could have retained normal movement. Tibial traction is good. Traction through os-calcis, olecranon, metacarpal head are not good.

Lower limb.—*Fractures of the neck of the femur*:—The limb is shortened, adducted and rotated outwards. Non-union is common. Subtrochanteric osteotomy of Lorenz type has given good results in un-united cases.

Shaft of femur:—In the femur, end-to-end apposition is desirable but a slightly overlapping fracture in good alignment is a better result than end-to-end apposition which has been allowed to angulate.

Fractures of the upper third of the femur:—The limb is shortened and adducted (*Figs. 9-a* and *-b*) and the body weight strains both hip and knee joints. Abduction after fracture adds apparent shortening to the real shortening and produces secondary changes in the spine also in addition to the changes in the hip and knee joints. Rotation inwards of the femoral shaft below a fracture is more serious than rotation outwards.

Fratcures of the middle of the femur (*Fig. 10*):—Fractures with lateral or antero-posterior angulation after good alignment during the treatment in bed become crooked if walked upon without the protection of a caliper.

Fractures of the lower third of the femur due to sagging at the site of fracture produce genu recurvatum (*Figs. 11* and *12*); the adjustment of slings at the site of fracture would prevent this deformity.

Fractures involving knee joint are those involving fracture of the condyles and T-shaped fractures of the femur leave limitation of movement of the knee. Fractures of tibial tuberosities are very difficult to be treated by operation. They have to be reduced by manipulation; on account of the depression of one or other of the tuberosities and due to the frequent incidence of hæmarthrosis, limitation of movement is common; aspiration of the blood, manipulative reduction and practice of active movements from the beginning in a Thomas' splint with a Pearson's flexion piece attachment (*Fig. 13*) are essential. In fractures of patella, osteo-arthritis usually developed in cases treated by former methods of bringing the fragments into alignment by Kangaroo tendon or silver wire. This has been overcome by excision of the patella. The functional result is good if the tendinous expansions are retained or secured if they are torn. Otherwise they have difficulty in complete extension and in getting downstairs. Quadriceps exercise should be given from the beginning with immobilisation of the knee in plaster for three weeks till the fascial wound is soundly healed.

Old cases of un-united fractures of the patella:—There is wasting of the quadriceps muscle; there is loss of voluntary extension and unaided lifting of the leg. Complete flexion of the knee is possible but patients cannot jump or run. They can walk even 20 miles but cannot board a running

train. They develop osteoarthritis of the opposite knee and may fracture the opposite patella. Excision of the patella is an useful procedure for un-united fractures; in old standing un-united cases it is very difficult to secure approximation of the fractured fragments.

Fractures of the lower third of the tibia:—A knock-knee may follow this if the tibia be treated as a straight one; the normal curve of the medial surface of the tibia should be moulded. Angulation inwards after a fracture of both bones of the leg will predispose to talipus valgus and knee strain; an angulation outwards will not be serious (*Fig. 14-a & -b.*). A long spiral fracture of the tibia often requires operation especially when there is shortening as even skeletal traction may fail. By rotating the ankle good apposition can be maintained (*Fig. 15*). Non-union is very common at this site.

Fractures around the ankle joint:—In the unreduced dislocation, valgoid deformity with a stiff ankle is the usual result; dropped foot and shortening of the tendoachilles is often seen as the end result. Even a comparative slight tilt of the talus will give an imperfect result. The backward displacement must be entirely overcome (*Fig. 16-a*). Reductions should be done early in spite of the œdema. Even after proper reduction eversion (*Fig. 16-b*) will recur unless during standing and walking the body weight is deflected to the outerside of the tarsus by crooking the shoe: no hurry is to be made in walking.

Fracture of the calcaneum:—There was a period when fractures of the calcaneus were not detected. With the correct appreciation of clinical signs a clinical diagnosis is now always made. Improvement in the technique of X-rays helps in the detection of a large number of cases which would otherwise go undetected. Many methods of treatment have been tried. It is now generally realized that no foot returns to normal after complete fracture of the os-calcis. There is no doubt that good results occur and the foot is painless and useful even when put to excessive work About 20% return to their former occupation with some disability and slight impairment of earning capacity. In a great percentage results are bad with marked disability and greatly lessened earning power. The cause of disability is painful walking from flat foot, arthritis of the talo-calcaneal joint. Spur formation on either side or at the heel, tenderness beneath the heel and arthritis of the mid-tarsal joints occur. Some of these painful feet are not rendered painless even with a triple arthrodesis and the disability is enhanced by muscle changes in the calf and foot. Immediate treatment of the fracture of the calcaneus is still a vexed question. Physiotherapy and restoration of activity of muscles is essential before weight-bearing.

Fracture of the talus:—Unreduced fracture of the talus usually shows marked thickening about the external malleolus with much pain. Degenerative arthritis is common and pain persists even after an astragalectomy. It is better to do a tibio-calcaneal fusion. Many cases of astragalectomy have done well. Some get inversion deformity.

Fracture of the tarsal navicular and cuneiforms:—Dislocation of the first cuneiform and dislocation at the mid-tarsal joint do occur. They should be correctly reduced. In Indian patients who walk and work barefooted such injuries are accompanied with abrasions and extensive echymosis. Necrosis over the bone follows from pressure and the infection causes great disability.

Metatarsal fractures:—Examination of cases of fracture of the metatarsals especially in those entitled to compensation indicates that pain comes on from allowing weight bearing too early. Excessive callus may cause pain. Angulation must be prevented in fractures of the shaft of the metatarsals.

Fractures of the phalanges of the foot:—Phalangeal fractures are commonly compound, and infection and gangrene are common sequences. Angulation may be present and should be corrected by continuous traction. Fracture of the proximal phalanx of the first toe requires some special attention. It takes a longer time to unite. A moulded lateral splint should be applied on the medial side of the foot and the toe held straight by bandage and strapping. If this special precaution is not taken and a bandage run round the toe there is danger of hallux valgus. Excess of callus on the inner side of the toe may prevent shoe wearing. There may be pain on weight bearing.

Dislocations of the metatarso-phalangeal and inter-phalangeal joints often go unrecognised. The pressure of the head of the metatarsal in unreduced cases produces a corn and makes walking extremely difficult. They require open reduction and correction.

Injuries of the foot:—Adhesions are common from the organisation of serofibrinous exudates in fractures, dislocations and sprains of the foot and ankle joints. A foot after removal of plaster casing feels stiff and active exercises should be begun first. Adhesions round the sub-taloid, mid-tarsal joints and between the talus and malleolus are common. Manipulation gives good results.

Compression fractures of the spine and fracture dislocations of the spine in the lumbo-dorsal junction are extremely common throughout the country. Toddy-tappers, agricultural labourers who go up the trees for felling firewood and who use lift wells in their agricultural operations, masonry workers who go up the scaffolding and people who have had falls from ladders and bicycles have sustained compression fracture of the spine. They should not go unrecognised at the time of injury as they result in posterior deformity and persistent disability. Every case should be X-rayed and if there is wedge of the body of the vertebra, the fracture should be reduced by hyperextension and put in plaster. The plaster should be kept for four months and exercises should be carried out. They complain of backache. If the fracture is not detected and treated within a fortnight it is impossible to reduce the fracture.

To sum up the disabilities arising from improper treatment of fractures are:—

(1) Fracture of the neck of the femur—Elevated pelvis, adduction and flexion with external rotation of the hip in addition to shortening.

(2) Fractures of middle third femur—There is an obliteration of the normal convex curve leading to genu recurvatum.

(3) Lower third of the femur—Sagging due to the action of gastrocnemius, which if uncorrected, leaves a hyperextended limb below the seat of fracture.

(4) Upper third of tibia—Adduction of lower fragment gives rise to a high bow leg.

(5) Middle and lower third tibial fractures—Obliteration of the normal tibial curve produces a knock-knee and everted foot.

(6) Pott's fracture—Foot dislocated backwards with eversion.

(7) Supracondylar fracture of the humerus—Elbow more or less fixed below a right angle and a bony block when flexion is attempted.

Deformities arise after trauma from unreduced dislocations and complications coincidental with dislocations and fractures due to the original injury or as a result of complications during and after treatment.

Dislocation:—The native bone-setter does not treat dislocation by reduction but massages forcibly and brings about laceration of ligaments so as to make the joint lax and mobile. This treatment produces some complications as myositis ossificans in the elbow and they generally bring about fixation in extension of the elbow joint.

All dislocations must be reduced promptly under an anæsthetic and sufficient rest given to the joint for repair of lacerated structures. This is specially so in the case of the elbow which must be rested for three weeks; no massage or passive movement is to be permitted; only active movement of the fingers and shoulder ought to be allowed.

Old unreduced dislocations of the elbow (*Fig. 17-a & -b*), metacarpo-phalangeal joint, inter-phalangeal and metatarso-phalangeal joints have to be reduced by open methods and generally a fascia has to be interposed in between (*Fig. 18*).

In the case of hip and shoulder greatest discretion is required in judging whether the function can be improved especially in longstanding cases; open reduction of old dislocations of the hip, both the posterior and the anterior types, is attended with great shock; the real disability in the case of the shoulder may not be great if there are no injuries to nerves.

Paralysis following dislocations and fractures:—(1) Dislocations of the shoulder are complicated sometimes (*a*) by injuries to the brachial plexus; (*b*) by attempts at reduction which sometimes result in brachial paralysis. Reduction of dislocation should never be attempted by placing the heel in the axilla.

(2) During reduction of dislocations of the elbow the ulnar nerve is involved sometimes and hence manipulations during reduction should be gentle. Radial nerve paralysis in fractures of the shaft of the humerus and in supracondylar fractures are common.

(3) In dislocation of the hip sometimes the great sciatic has been permanently paralysed. This condition also occurs after reduction of congenital hip dislocation.

(4) Projection of the lower end of the femur against the popliteal vessels and nerves should be looked for.

(5) Crutch palsy and involvement of nerve in adhesions or callus may occur.

Post-traumatic conditions.—*Pellegrini-Steida disease* (*Fig. 19*):—It is a post traumatic disorder of the knee characterised by opacities visible in the X-ray near the internal condyle of the femur; it cannot be demonstrated until 2 or 3 weeks after the injury. It is a local manifestation of

post-traumatic change common to joints. It commonly affects the tibial collateral ligaments and may occur in the tendons of attachment of adductor magnus or vastus medialis muscle. It is akin to traumatic myositis ossificans or opacities in sub-deltoid bursitis. It has been met with in the ligaments of other joints as ankle and elbow. It is more common than one may think.

Calcification of semilunar cartilage :—It is not common and can be demonstrated by X-ray. It has to be removed.

Ossification of tendo-achillis :— This condition is common beyond the age of 30 both in males and females. This bony mass sometimes gets fractured; the foot is manipulated and acupunctures give relief. It is better not to do any open operation and excise the bone; this bony mass is found interspersed in tendo-achilles and there may be loss of power of this tendon.

Post-traumatic osteoporosis (*Fig. 20*) :— This is a very painful condition and was described by SUDECK. It usually occurs in the fingers and hand and sometimes in the foot. It is common after Colles's fracture. The skin is shiny and trophic. Complete stiffness of the fingers may be present. X-ray shows very marked decalcification of the bones. The condition may be prevented by insistence on active movements from the very beginning, and by avoiding œdema and passive movements. With use and active movements the condition gradually improves.

Deformities arising as a result of injury to nerves :— It is important to repeat that deformities arise from nerve injuries and in the examination of a wound or a fracture it should be the motto of the examiner to keep before him the maxim. "Don't think of the wound but think of the limb below." In examination of every wound and fracture, the function of every part below should be tested to find out the condition of the nerves and in the final assessment of every case the nerve function should be tested.

Injury to the brachial plexus results during child birth in new born babies and in adults after severe shoulder injuries and violent twists of the neck. Crutch palsy affecting the radial nerve is common after the use of wrong type of crutch. Shoulder dislocations are complicated by nerve injuries. In all cases of fracture of the shaft of the humerus the radial nerve should be tested. Supracondylar fracture of the humerus are associated in at least two per cent of cases with radial nerve injuries and fractures of the medial condyle with affections of the ulnar nerve. Traction neuritis of the ulnar nerve is a late sequel in supracondylar fractures with lateral displacement of the fragment and increased carrying angle. This should be prevented by anterior transposition of the ulnar nerve. It has been noticed several times that wounds of the fore-arm are sutured without any thought being paid whether the nerve is wounded or not. The muscles and tendons may be severed. Attention is often paid to this but not to the nerve. Sensation of the fingers should be tested to exclude nerve injuries. Although the 'main en griffe' deformity of the ulnar nerve paralysis is obvious, functional loss is greater in a median nerve injury which may often be missed.

Paralysis of the external popliteal component of the sciatic nerve is common after fractures of the pelvis, separation of symphisis pubis during

normal and abnormal labour and is often missed. Common peroneal nerve paralysis may occur during the reduction of the fracture of the lower third of the femur, during the correction of a flexed knee even by gradual correction and fractures of the neck of the fibula. It is one of the commonest nerves affected in this country and foot drop is a great disability which should be prevented from the beginning with boots with a lateral iron and a foot drop spring. (*Fig. 20*).

Injury to tendons :—Emphasis should be laid again on the maxim 'don't think of the wound but think of the limb below'. It is common to find in examination of a wound of the wrist the severed tendons have not been repaired but the skin is sutured. In contrast to the surgery of the tendons on the flexor aspect, suturing of the extensor tendons give good results even in old cases and therefore the cut tendons over the back of the wrist should always be sutured. Cut tendons over the back of the metacarpo-phalangeal joint should be recognised. Generally an open injury of the tendon will open the joint also as the extensor tendon is closely incorporated with the capsule of the metacarpo-phalangeal joint. Infective arthritis and loss of extension at the metacarpo-phalangeal joints are the usual end results, if an amputation of the finger has not been necessary. The extensor pollicis longus tendon may get ruptured by attrition after a Colles's fracture and a tendon graft has given good result. The rupture of the extensor longus hallucis of the great toe is common and is a great handicap to a bare-footed individual. Walking becomes difficult on account of the flexion of the great toe. This may be prevented by suturing of the tendon.

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Mental Health - A Social Problem for the State*

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1. **Mental Health as a Social Problem.**—Social medicine has been described as that branch of science which is concerned with the (*a*) Biological needs, interactions, disabilities, and potentialities of human beings living in social aggregates; and (*b*) numerical, structural, and functional changes of human populations in their biological and medical aspects.

Social medicine takes within its province the study of all environmental agencies, living and non-living, relevant to health and efficiency, also fertility and population, genetics, norms and ranges of variation with respect to individual differences, and finally investigation directed to the assessment of a regime of positive health (*British Journal of Social Medicine*).

Social planning and social medicine, are largely dependent on psychiatry for guidance. Positive mental health can usefully be defined as 'discriminative self-restraint associated with consideration for others.' And positive mental health can but rarely exist, without positive physical health. And the aim of social medicine is the fostering and development of such positive health.

* Specially contributed to THE ANTISEPTIC.

To a large extent also the methods employed must necessarily be statistical, involving the use of numerical data obtained either from official sources, or from special field investigations and interpreted in the light of established findings of the laboratory of the clinic.

Compared to the statistical information available in the United States and in England, on all aspects of human endeavour, India falls far short in every respect. But with the appointment of the Health Survey and Development Committee presided over by Sir JOSEPH BHORE, an attempt was made to investigate the problem, and supply the deficiency, as far as practicable. The Bhore Committee findings are a mine of information for administrators and social workers alike, and the Report of the Committee is a historic document of great value in social medicine for India. And if only a few at least of their recommendations are given effect to by the authorities concerned, it would mean great progress in India.

We have not yet gone far towards improving the health which we derive from nature unaided. The enormous amount of investigations in medicine, has given us only a superficial knowledge of phenomena of disease, and an apparently comforting but totally unfounded claim of being able to control it.

Bacteriology and chemotherapy (Penicillin, Sulfa drugs, Paludrine, etc. have made successful assaults on infective disease, but chronic infections, degenerative and constitutional disease, are still effectively untouched by science. The problem is one of social organisation, rather than the direct application of science. Mortality and illness rates show that greater part of disease is avoidable in that it is avoided by the wealthier sections of the population.

The first stage in the conquest of disease is to give those conditions of food and surroundings to the whole population to enable them to reach the standard of health, enjoyed at present only by the rich, without of course encouraging the excesses by which the very rich ruin themselves in their health (obesity, high blood pressure, diabetes, and gastric ulcers).

Far more attention is essential to the natural processes of recovery from disease. Social organisation and a national health administration, can control infective disease.

But the fatal diseases of old age offer a serious check to Science and Sociology. Here success must go beyond nature, and this requires a deep understanding of the processes of development and decay. General hardening and drying of tissues and arteries, problems of rejuvenation and regeneration, and the natural use of foods, gland products and growth promoting substances await fundamental research. The problem of cancer seems to be perhaps reaching a solution.

Closely allied to the question of health is that of the biological control of population as a whole. Decrease in reproduction, in socially acceptable groups, is a serious problem. For most women, under existing conditions, there is not sufficient incentive, physical, economic, and protective, to bear a number of children adequate to maintain the population.

There is in the world food enough and room enough for centuries of increase of population at the maximum biological rate, say, doubling every forty years. But under the present day conditions, millions are starving from lack of transport, lack of currency, and man-made difficulties. A

strange commentary on our economics is that while people are dying for lack of food, enormous quantities are being destroyed in other countries, as for instance potatoes in America and coffee in Brazil, and wheat in Argentina.

Social inequality of opportunity and racial and communal differences must disappear before any satisfactory solution of these problems can be obtained. And social science can play a great part in hastening the advent of such a world.

I am stressing these problems because only the State, and international organisations like the U.N.O. can cope with the large issues involved.

II. **Mental Health Services in England—A Survey.**—*Origin of survey*:—The best approach to the problem of the State and the Mental Health Services in England, would be to summarise the report of survey undertaken during the war, and published in book form by BLACKER.

The survey had its origin in a memorandum submitted on 4th March 1942 by Dr. AUBREY LEWIS, Professor of Mental Diseases, University of London and Clinical Director of the Maudsley Hospital, to the Director-General of the Emergency Medical Services. Briefly, the argument of this memorandum was as follows:

The war had intensified the psychiatric needs of the civilian population and at the same time had curtailed the medical services by which these needs could be met. Despite the fact that surprisingly few cases of overt neurosis had resulted from the air attacks on large cities, there were indirect reasons for thinking that psychiatric stresses were increasingly felt.

The impact of these stresses was most noticeable in industry. Absenteeism caused by neurotic illness was considerable, especially among women workers: in one industrial concern more than three times as many workdays per man were lost in 1941-'42 owing to neurosis than had been lost in a prewar year: in another firm the proportion of days lost per employee because of nervous illness had been found in a special investigation of transport workers and their wives. As the war proceeded, moreover, the civilian population was becoming a dumping-ground for service rejects. Every twelve months there were discharged from the Army some twelve thousand neurotics in Category E, that is, as totally unfit.

At the same time, the psychiatric services available to the civilian population had been substantially reduced because of the requirements of the Forces, especially the Army. But the Army in Great Britain contained many fewer people than the civilian population; and the Army had purged itself of many of its neurotics who had become civilians.

An investigation of the extent of neurosis and allied states, and of the facilities for consultation and rehabilitation, was called for; this should be jointly directed by the Ministry of Health and the Medical Research Council. These were the main points of Dr. Lewis's memorandum.

2. *Objects and scope of survey*:—As first proposed, the survey was intended to provide information on (1) the psychiatric out-patient services of England with a view to such organisation and redistribution of personnel as seemed desirable in the light of changes brought about by the war; and (2) the psychiatric reactions of the civil population to the war. Had there

been an increase in neurosis? Were the out-patient psychiatric services adequate?

The mental health services in England are: 1) Mental Hospitals, (2) Voluntary, and other types of general hospitals with facilities for examination, and out-patient treatment and in a few hospitals, for in-patient treatment of early mental disorder. All mental hospitals and psychiatric clinics are supervised by the Board of Control, one for England and another for Scotland.

In England and Wales, there were 5·47 psychiatric clinics per million of the population, and the number of mental patients varied between 3 to 4 per thousand of the population.

3. *The main findings of the survey*:—As a result of the survey, it was found that there was no great increase in mental disorder, due to war, but there were statistical variations in the different types of mental disorder. But what is more important has been the recommendations which are, in the following order of priority, four:

(1) Good psychiatrists in sufficient numbers; the speciality should attract able men with an interest in and aptitude for the work, teachers of psychiatry should be on the lookout for these. Simular remarks apply to nurses.

(2) Good all round training for psychiatrists and for psychiatric nurses in sufficient numbers.

(3) Good accessory services (social workers, psychologists, occupation therapists).

(4) Good buildings and material facilities.

III. Mental Health Services in America—American Research Programmes in Psychiatry.—The agencies which care for mental patients in America are: (1) Mental hospitals, known as State hospitals; (2) University neuro-psychiatric clinics; and (3) receiving and clearing centres—the famous ones being the psychopathic clinics in New York, Boston, Chicago, Phipp's clinic in Baltimore, and Meningers' clinic in Topeka, Kansas. The administrative control of mental hospitals in each State is vested in a Commissioner of Mental Diseases, and that of the veterans in a special officer subordinate to the Surgeon-General. Amongst numerous non official organisations associated with American psychiatry are: (1) The National Committee for Mental Hygiene; (2) the Rockfeller Foundation; (3) Commonwealth Fund, (4) The Judge Baker Foundation at Boston; and (5) Foundation for neuro-endocrine research at Worcester—MASS.

The incidence of mental patients in America varies from 4·5 to 6 per 1000, and half a million patients are received annually into various Mental Hospitals, in which there are already nearly a million and a half patients. As a contrast, in India, with nearly four million mental patients, there is hardly accommodation for ten thousand, in twenty institutions, of which the majority are merely custodial institutions.

The way in which the State and the Organisations I have mentioned above, help American psychiatry, can be appreciated by considering the assistance given to the research programmes, which are all aided by the State or the various Foundations. The States maintain most of their mental hospitals.

The modern attitudes and programmes which influence the trends of research and determine the problems for investigation are:—

1. The analytical and interpretative attitudes which consider the individual as a biological unit.

2. The opinion that the personality organisation from infancy to adult life must be thoroughly studied to understand the normal and pathological mental states or reactions.

3. The careful investigation of heredity and environment and the adjustments and balances between these large groups of factors.

4. The evaluation of physical illnesses and the search for possible organic brain alterations.

5. The attempt to reveal the mechanisms and their particular meaning in the conduct and ideas exhibited by the psychotic and neurotic patients.

6. The special aims towards the prevention of mental disorders in the community.

7. The child guidance clinics and the study of problem of children.

8. The detection of early mental disorders, personality defects and changes, odd dispositions and characters.

9. The social aspects of mental disorders, particularly those leading to juvenile delinquency, criminal careers, and pauperism.

10. The education of the public by surveys, lectures and conferences.

11. The types of medical and nursing education pertaining to the speciality of psychiatry.

Research in the field of psychiatry now consists of: (*a*) the investigation of brain potentials and conduction phenomena in the central nervous system; (*b*) a search for detailed pathological changes in the brain and other organs; (*c*) the physical and chemical variations in the blood, cerebrospinal fluid, and other constituents of the body; (*d*) a study of the chemical equilibrium of the body; (*e*) the precise nature of the instinctive drives and urges; (*f*) the delineation of the elements entering the organisation of the personality; (*g*) the various patterns of personality reaction, including the disorders and the significance of the human environment in the home, the school, and in economic and other social adjustments; (*h*) the search for any medical and psychological resources that could be utilised for therapeutic adjustments; (*i*) shock therapy; and (*j*) surgical approach to the brain.

The school of American psychiatry advocates proceeding along the following general lines in dealing with a particular psychiatric problem; the correction of all physical defects; the establishment of rapport between psychiatrist and patient: the detailed investigation of the personality problem; the attitude towards and adjustment to reality; the ventilation of conflicts; the desensitization of the patient; the institution of re-educational training, the formation of an adequate philosophy of life; and follow-up studies. It should be said that the American school is attempting to correct the following deficiencies, the lack of psychiatric instruction and training in so many of the medical schools by making an analysis of the training in such work and recommending improvements; the lack of knowledge of the principles of mental hygiene by the general practitioners

and the lack of proper psychiatric education of the laity and the clergy. (NOLAN LEWIS—*A Short History of Psychiatric Achievement*).

IV. **Preventive psychiatry.**—The first aim of a comprehensive and free medical service should be to prevent disease. Disease is caused by the interaction of factors inside and outside the individual, by the interplay of genetic predispositions with influences exerted by the environment. It is the joint product of nature and nurture. Genetic factors play a more obvious part in psychiatry than in most other fields of medicine. They contribute much to mental deficiency, especially the higher grades, and to mental subnormality; to many forms of psychosis; and together with adverse influences beginning in infancy, to various manifestations of neurosis. But these genetic factors are complex and difficult to assess. Compared with them, causes arising in the patient's environment are easy both to recognise and to control. It is easier to improve the conditions in which a people live than to change that people's inborn qualities; yet both are tasks for the sociologist.

From a recognition of the influence upon health of how people are reared, work, behave and live in their homes, has developed what is now called social medicine, which is the medical aspect of sociology. Preventive psychiatry together with preventive medicine as a whole has its roots in sociology.

The following are among the sociological changes which have a bearing upon preventive psychiatry.

Better education of adults in the sensible handling of children in what habits of mind to instil and what emotional situations to avoid. There is a psychological as well as a physical aspect of infant and child welfare. Useful work has been done by voluntary societies in preaching and teaching what is called mental hygiene or mental health.

Better educational services, with facilities for the early detection of mental defects or disorders; the provision of appropriate training from the earliest age for handicapped children. Early recognition of, and provision for, children with abilities above average. Innovations valuable from the psychiatric standpoint are embodied in the Education Act.

Better social standards of nutrition, housing and town-planning; such as will promote fullest physical development and health at all ages. Corresponding psychological benefits would follow from improved social services designed to encourage family life and minimise the fears and consequences of illness, unemployment and destitution.

Improved working conditions and leisure facilities.

Better industrial, occupational and social psychiatry, including vocational guidance, all designed to secure good occupational adjustment.

Limitation of fertility of prolific and at the same time constitutionally inferior types. Arising from an inquiry into the causes of mental deficiency, the Wood Committee (1929) drew attention to the existence of a "Social Problem Group" consisting of persons who exhibited multiple social problems. Among the persons in the group, a high fertility the product mostly of unwanted and haphazard pregnancies, is associated with a high incidence of mentally defective (mostly high-grade) and mentally subnormal persons, insane persons, epileptics, psychopaths, paupers, criminals (especially recidivists), unemployables, habitual slue-dwellers,

ostitutes, inebriates and other social inefficients. Social and genetic ctors contribute jointly to this picture; but in the measure that the mer are improved, the latter will be brought into prominence.—(BLACKER *Neurosis and Mental Health Services.*)

V. **Mental health services in industry.**—The aim of health services in lustry is "to discover the best possible human conditions in occupational rk. Whether they relate to the best choice of vocation, the selection of e most suitable workers, the most effective means of avoiding fatigue d boredom, the study and provision of the most valuable incentives to rk, the causes of and remedies for irritation, discontent and unrest, the st methods of work and training, the reduction of needless effort and ain due to bad movements, and postures, inadequate illumination ntilation and temperature, ill considered arrangements of material, or fective routine, lay-out, or organisation." (C. S. MYERS—*Industrial ychology*).

Noise in factories in India is appalling, and is the most important ysical factor responsible for fatigue and ill health. In the case of workers gaged in monotonous work, noise and vibration from other parts of the rkroom are very harassing and objectionable. Where noise is unavoidle, the real annoyance and suffering that it may cause should at least be nfined within as narrow limits as possible.

The problem of industrial fatigue is another requiring attention. uscular fatigue is due to accumulation of lactic acid—nervous fatigue is rhaps due to accumulation of either the end products of metabolism or haustion or enzymes and chemicals necessary to transmit impulses at e end of nerves. Mental fatigue, more often due to emotional causes, hibits itself as irritability, inability to concentrate, and lack of interest d initiative. And if such persons are in charge of machinery, the consence for them and for others may be disastrous.

Industrial fatigue is a compound of all the three, and it is not easy to easure. In progressive American factories, such as the Western Electric, nger Sewing Machines, etc., it is measured by means of a work curve, or efficiency curve, individual to each workman. Industrial fatigue is ways associated with accident proneness and industrial neurosis.

Provision for rest pauses, attractive and remunerative work, and good vironment are essential to prevent industrial fatigue. But more impornt than all these is investigation of personal problems and treatment neurotic states. Every large factory in England and America has a ychologist and his staff, working in close association with a psychiatrist tached to a State Hospital. In India, this is unknown.

And progressive employers, have made provision in their factories even r free legal advice, in the case of such employees who unwillingly have come victims of blackmail.

"Accident proneness" is really a health problem. An extensive statisal survey conducted on behalf of the Industrial Fatigue Research Board as demonstrated that accidents are generally limited to small number of orkers in a factory.

Nervous instability, poor motor co-ordination, and psycho-neurosis are ually associated with such accident proneness. Periodic investigation of orkers apart from their scientific selection will largely diminish the equency rate of accidents.

Inebriety, poor vision, marital difficulties are other factors. In women workers, anæmia, exhaustion, frequent child-birth, and the psychological factors of antipathy to machinery, need to be stressed, which are all problems for investigation by health workers, and the health services of the State.

VI. **Individual assessment a mental health problem for the State.**—The assessment of individuals is an important problem in social welfare. And the contributions made during the war can with great advantage be made use of in civil life.

The British Army adopted, what is known as the Pulhems' System, devised by the Canadian Army, by which a profile assessment is made for each man—Physique, upper limb function, lower limb function, hearing, eye sight, mental capacity (that is intelligence), stability.

The employability of a man is much more satisfactorily decided by such a profile than by any of the older and simpler methods of categorisation which have been in use.

Emotional difficulties which lead to mental ill health, suffering and inefficiency are to be regarded not merely as individual matters, but as an expression of group maladjustment. As a result of the type of assessment mentioned above, which is essentially a sociological approach, the problem of the dullard, the inadequate, and the unstable, can be better understood, and dealt with.

1. *The problem of the dull and the inadequate.*—In India there are at least two million mental defectives needing medical help, educational facilities, and social relief, but here is none available. In America and elsewhere, there are special services and semi-agricultural, and industrial colonies for their care. But in India there is none. A beginning has been made in this direction by the Mysore Government, under whose directions a colony has been started in Bangalore.

Apart from frank mental defectives, the dullards offer an interesting medico-social problem. It has long been known that being suggestible, irresponsible, and emotionally unstable, they can be taken advantage of by the unscrupulous; the result is that vagrants, beggars, delinquents, drug addicts and perverts, and prostitutes, are found largely among that group. The spread of venereal disease by such people is another great danger

During the war, the auxilliary territorial service, that is, the women's services of the army, had to face many tiresome problems in connection with such dullards. As interesting examples might be quoted, the high correlation between low intelligence and lice in the hair, and scabies on the body. The latter was confirmed for men also. Such people can however be used for manual labour, monotonous, and which involves no responsibility. There has been a popular tradition that dull men made good soldiers, but the experience of the last war has exploded it.

To quote BRIGADIER REES, "The dullard amongst men of higher intelligence beginning to feel himself inferior, and from this he develops anxiety; he may break down, or he may malinger. Because he does not comprehend at all easily, the dullard disobeys or ignores regulations, and becomes a disciplinary problem to the army."

But psychiatric investigation has shown that many of such dullards could be drafted to the unarmed pioneer corps, where living and working

together in a community, these men found friends of their own intellectual level and did well. This has valuable lessons for civil life. We know that the bulk of chronic sickness and of recidivism comes from the constitutionally inferior group, the psychopathic tenth of the community. This is a problem to be tackled by the administration, the medical men, and the social workers.

2. *Selection of officers and the problem of the unstable.*—The war taught us also more rational methods of selection of officers. The methods used can be utilised with great advantage in the selection of people who have to become executives, responsible officers, doctors and social workers. The tests consisted of methods of group testing with special emphasis placed on procedures to determine finer shades of character and personality.

Capacity for leadership, ability, character, and insight of an officer in the army, or a person occupying a position of responsibility in civil life, are essential for the happiness, welfare and efficiency of the group of men he commands.

During the last war, after the routine standard physical examinations the group of men to be selected for officers were subjected to (1) a group intelligence test; (2) a personality questionnaire; and (3) a psychiatric interview. The following was the procedure recommended by the War Office Selection Board.

The candidates came up for two or three days to the headquarters of the Selection Board, where they lived in a hostel or mess with its usual comforts. The President would address them the next day, and then outdoor and indoor tests would be administered, the problems given being designed to test their commonsense, rather than military skill.

In some selection areas, Bion's "Leaderless group" tests were given. The basic idea underlying the method is that when a group of candidates are presented with a problem, which they have to solve as a group, and with no leader appointed by the testing officer, nor any help given, a situation arises that reproduces the fundamental conflict between the individual and society. The self-centred man either remains aloof, or tries to show himself off, whereas the man with good contact identifies himself with the purpose of the group, namely to achieve a co-operative solution to the set problem.

The principle of the method can be utilised in various ways, such as in carrying out discussions and in various practical tasks and games.

The results of the different tests were computed by the Board, and before a decision was arrived at reorganisation, the candidate would be interviewed collectively by the Board and individually by the President.

The two main fields of the personality that had to be investigated in an officer, were (1) that covering his resourcefulness, adaptability and competence; and (2) that covering the quality of his contact with others.

It was found subsequently that there was a high degree of correlation between the results of such tests and the way in which the officer acquitted himself in active service. These methods of investigation must be incorporated in the health services of the State.

3. *Stability and morale.*—In every person destined to occupy positions of responsibility three qualities are essential, stability, human interest, and social curiosity.

Stability is conditioned by constitutional factors and social factors. Amongst the constitutional factors, the important ones to be eliminated are hereditary imbalance, intellectual deficit, epilepsy, childhood illnesses, such as rheumatism, meningitis, and deficiency diseases. Amongst social factors might be mentioned, cultural and economic inadequacy of the family, broken homes, apathy, lack of education, unemployment or uncongenial employment, and social insecurity. And also to be considered are problems of isolation, frustration, futility, and injustice.

The importance of such studies in social medicine, can hardly be stressed.

This leads us on to the question of "Morale" which in spite of having become a newspaper catchword, connotes the state of mind of an individual, group or nation, which ensures for it, survival or destruction

Never before in the history of India has the importance of "Morale" been more than at the present day. The three main factors that make for good morale are: (1) the possession of an ideal; (2) a sense of one's competence and value; and (3) the feeling that one matters as an individual in a group of other similar people.

In every country there has always been a struggle to translate ideologies and theoretical values into *practical* and understandable terms. Hatred of others, or of different *communities* is suicidal, and *ideals* and realistic tasks that can be simply and clearly explained have a *much* stronger and more vital appeal.

A sense of competence and skill in one's work depends on good training and on good selection Every person doing a job of work must feel that he is a master of his own particular craft, have a pride in it and he should also be given due appreciation for that skill.

The third factor in morale is that there should be a sense of one's value as an individual in a group. It should not carry with it any feeling of frustration, futility or injustice. The recent reports of student's strikes, their sense of indiscipline and lack of morale, can be considered as a case in point.

The educationists and administrators cannot disclaim responsibility for such a state of affairs. Poor selection of students for University training, discrimination because of community or influence, and lack of adequate and well-equipped institutions, poor staff, and staff with legitimate grievances, lead certainly to demoralisation in staff and students alike. And it means ruin in Universities and academic institutions, if they become pawns in politics.

VII. **The refugee—a problem in mental health for the State.**—Two years ago, at the kind invitation of the then Director-General of Medical Services, SIR J. B. HANCE, I reviewed the progress of mental disorder in India, a paper which was published in part by the *Indian Journal of Social Work*, May, 1946. During the course of the review, it was stated that "In India where there has been no rapidly changing communities and where historical and anthropological development has been evolutionary than revolutionary, there can be no marked cultural determinants of mental disorder," and also "India is predominantly an agricultural country and mass migrations are rare. It has been only during the last few years on account of the war, when factories have sprung up all over the country, that migrations from villages to industrial towns and factory areas are common."

How little could one foresee then the great tragedy of communal fratricide that has followed the declaration of independence of August 15. What should have been an occasion for great rejoicing, has become associated with massacre, untold suffering, and mass migrations, which find no parallel in history.

The more important movements of people in history, in general, have been determined principally by ecological factors. This is the case with much of the immigration to the United States, and in the flow of population from cities to suburban districts. Ecological migrations are movements in the struggle for a better place in the economic order.

But the reasons for the migrations that are occurring now in India are horrible to contemplate. And they are bringing in their wake, sociological problems of great importance. Problems of health and of rehabilitation of refugees are taxing the ingenuity of Governments, and of all social and health agencies. Migration always disorganises the social system. One of the essentials for normal and conventional behaviour is full membership in primary groups in communities of stability. The migrant is separated from such membership and therefore becomes increasingly individuated as the length of separation increases.

High rates of behaviour disorders, ill health, high suicide rates, and professional crime, and communal flare-up have to be guarded against, if large members of refugees are permitted to migrate into far off areas, say from the Punjab to Madras and the South, and not assimilated.

The effects of these unsettled conditions on children and youth must be widely recognised. A rise in the rate of juvenile delinquency, with crimes against property chiefly, and occasional personal violence is to be apprehended. These unsettled conditions unleash repressed and previously sublimated aggressions in young and old alike. And there is no doubt that they brutalise human character. It is a common misunderstanding of the child's nature, which leads people to assume that children will be saddened by the sight of destruction and aggression.

A study was made sometime ago in England of the consequences of evacuation on children, and the following observations are relevant:

1. If children were taken away from their parents and put with strangers, emotional disturbances, due to loneliness, sense of isolation and loss of emotional support occurred.

Actively anxious states and aggressiveness were common in boys, passively anxious symptoms, and delinquency were more frequent among girls.

2. If the foster homes were of a superior economic level than their own homes, children resented the fact, and refused to accept the clothes given and personal attention bestowed, and many children considered this as a form of punishment.

3. Common neurotic symptoms amongst evacuated children are refusal to talk, undue fantasies, misconduct, temper tantrums and infantile regressions such as bed wetting.

Amongst evacuated adults, acute panic, followed by loss of memory for the event, immobility, and stupors were quite common as also depressions and hysterical states which persisted for months. I am stressing these particularly, as they are problems for all social workers, to be on the look out for amongst the refugees.

The aftermath of Indian Independence might well be followed by disillusionment. A character in Remarques "The Road Back" has stated the general problem thus: "We had pictured it all otherwise. We thought that with one accord, a rich intense existence must now set in, one full of joy of life regained, and so we had meant to begin. But the days and weeks fly away under our hands, we squander them on inconsiderable and vain things and we look around and nothing is done." Disillusionment, frustration, futility, lack of economic and emotional security, find their vent in mass hysteria, labour strikes, disorganisation in society and of family life, and destruction of old loyalties and traditions, and of individual and group morale. These are larger problems of health in which the individual and the State co-operate for service.

VIII. **Conclusion.**—The above paragraphs are the reflections of a psychiatrist regarding Health Services and the State. I have stressed largely on mental health, as it is a field in which I have some experience. Problems of nutrition, adequate hospitals, staff, public health problems, nursing, collection of statistical data, economic and medico-social, and genetics have not been mentioned, in spite of their great importance, because they are dealt with more comprehensively by others. I must also emphasise that there is very little that is original in this paper. All my ideas have been collected from my colleagues, and from various books and journals published. A list of references is furnished at the end.

Nationalisation of health services is a matter which is engaging the attention of the administration in England at present. In India, where health services are associated (except perhaps in big cities) largely with Governmental agencies, nationalisation is already present in some form. What perhaps is more urgent is more adequate medical help, and better co-ordination of health services. The Bhore Committee's Report is a mine of information on the subject.

In India more hospitals are required, more doctors are needed, and more than doctors adequately trained nurses, and medical colleges, nursing institutes, and more institutes of the type of Tata School of Social Sciences.

History points out the direction in which medicine is moving. The physician's knowledge is no longer based on theology or philosophy but on science. Scientific research will therefore remain the rich source that supplies the physician with ever-improved views, methods, and techniques for the protection of health and in the fight against disease. But scientific knowledge alone is not enough. Physician and patient are both members of a highly differentiated society. Hence scientific research must be supplemented by sociological research which studies the life cycle of man in his social environment and investigates factors favourable or detrimental to health, and methods of social adjustment.

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An Angel reveals a "Medicinal plant to the Emperor Charlemagne."

This picture of a Medieval Artist shows how the people accepted remedies as gifts from Heaven.

Modern pharmaceutical research has confirmed and improved the medicinal qualities of ancient drugs.

Treatment of Leprosy with the Sulphone Drugs*

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Introduction.—The Sulphonamide drugs such as Sulphanilamide, Sulphapyridine, Sulphadiazine, and Sulphathiazole are very feebly active against acid-fast bacilli, and have not proved to be of any value in the treatment of leprosy or tuberculosis.

Favourable results in the treatment of leprosy have, however, been reported with an allied group of drugs—the Sulphone drugs. The Sulphone drugs were found effective in experimental tuberculosis in guinea-pigs, and promising results were first reported in the treatment of human tuberculosis. This suggested their use in the treatment of leprosy. While in tuberculosis conflicting results have been reported, the drugs have been found to be of value in the treatment of leprosy.

The parent drug of this group is di-amino-diphenyl-sulphone. A number of derivatives from this parent drug have been prepared, such as Promin, Diasone, Bromizole and Sulphetrone.

FAGET *et al* (1943) and FAGET and POGGE (1945), FITE and GEMAR (1946), WHARTON (1946), MOM (1946) have reported favourably on the Promin treatment of leprosy, and FAGET *et al* (1946) have reviewed the present status of this method of treatment. MUIR (1944, 1946), FAGET and POGGE (1945) and FAGET *et al* (1946) have given similar reports regarding Promizole. FAGET (1947) has reviewed the treatment of leprosy with the three Sulphone drugs. No report has yet been made on the treatment of leprosy with Sulphetrone.

In the present publication is represented a preliminary report on the cases treated in a leprosy hospital at Calcutta with three of these drugs—Promin, Diasone and Sulphetrone. We have no experienee with Promizole. The Diasone and Sulphetrone used in this experiment were supplied free by Abbot Laboratories, Inc. (U.S.A.) and Burroughs Wellcome & Co, respectively; Promin was supplied at concession rates by Parke Davis & Co., Detroit.

Selection of cases.—50 cases of the lepromatous type have been treated with these drugs. All the patients were bacteriologically positive and lepromin-negative, and most of them had the disease in an advanced stage. Several of them were suffering from complications such as ulceration, eye lesions, repeated reactions, etc. Some of the patients were included specially because they could not stand even small doses of the hydnocarpus oil and had therefore been practically without any treatment. All the treated patients have been in-patients in the Albert Victor Hospital for leprosy in Calcutta.

The procedure adopted.—Before starting the treatment in any case, a blood examination is made including a total red cell count and hæmoglobin estimation. If the red cells and hæmoglobin are found appreciably below the normal, the patient is first put on a course of iron, with or without liver, and the treatment with the Sulphone drugs is not started till

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the blood picture improves satisfactorily. During the course of treatment, periodic blood examinations are made and iron with or without liver is given whenever indicated; this was required in over half of the cases. In addition, vitamin B is given to all the cases, who also receive supplementary diet in the shape of increased amount of meat and fish.

In addition to the routine blood examination, concentration of the drug in the blood of the patient is estimated periodically.

Methods of administration.—Because of its toxicity when given by mouth, Promin is given by the intravenous route. Diasone and Sulphetrone are given by mouth.

The dose of Promin was started at 1 gm. and was slowly increased to 5 gm. a day, but the maximum could not be reached in all the cases. The dose of Diasone was started at 1 capsule (¼ of a gm.), a day and has in most cases been increased to 4 capsules (1 of a gm.), and in some cases to 6 capsules (2 gm.) a day. The starting dose of Sulphetrone was 1½ gm. (3 tablets) and it has been gradually increased to 6 gm. (12 tablets) a day, in most cases. In case of all the three drugs, some patients cannot tolerate the maximum dose, and an attempt to increase the dose beyond a certain limit results in increase in symptoms, specially the eye-symptoms.

All the three drugs in the above doses have been given in courses of 2 weeks followed by 1 week's rest. With this procedure toxic effects including anæmia have been kept at minimum.

The effect on blood.—In most of the cases the administration of the drugs produces a decrease in the red cell count and a parallel decrease in the hæmoglobin values but in most of them the values can be maintained at a fair level by the administration of iron, alone or with liver. Usually there is a fall in the red cells and hæmoglobin in the first two or three weeks following the administration of the drugs, and then there is a tendency for improvement which is maintained till about 6 or 8 months. After this period there is again seen a tendency for the blood picture to deteriorate, but the patients respond satisfactorily to iron, with or without liver.

The concentration of the drug in the blood varies with the method of administration. In case of Promin which is given intravenously, the highest concentration has been 10–12 mg. per 100 c.c. of blood after a dose of 4–5 gm., this concentration is reached about an hour after the administration of the drug, which is quickly eliminated so that usually no drug is found in blood 12 hours after the injection. In case of Diasone and Sulphetrone which are given by mouth, the blood concentrations have been between ·5 and 3 mg. on the average about 2 mg. per 100 c.c. of blood with the doses used. The blood concentration tends to fall when the patient has been under treatment for some weeks, so that the dose which produces a concentration of 2 to 3 mg., in the beginning, later produces much lower concentration, and it may be as low as 0·5 mg. per 100 c.c. The highest concentration is seen 4 hours after the administration of the drug and no traces are found usually 24 hours after the last dose.

The results.—The Promin group has now been under treatment for 19 months, the Diasone group for 13 months, and the Sulphetrone group for 7 months only.

Clinically, improvement has been seen in most of the cases in all the three groups. In a small number of cases who could not tolerate an adequate dose of the drug, no improvement was seen. The improvement consists of subsidence of areas of infiltration, disappearance of small nodules, decrease in the size and softening of big nodules (both cutaneous and sub-cutaneous) and improvement in the eye conditions. The most marked results have been seen in the treatment of leprotic ulcers, both general and nasal, which heal up quickly, and do not recur. Tendency to reaction is checked or minimised, the reactions not recurring or recurring less frequently and with less intensity.

Bacteriological improvement has not been marked during the periods of treatment, and in only two cases have the smears become negative, though in others the number of bacilli is generally less.

The treatment has certain limitations. The drugs have had no effect on the nerve pains and nerve abscesses, which were a marked feature in some of the cases under treatment. Other neural symptoms such as loss of sensation and deformities also did not show any improvement.

Conclusions.—In the treatment of lepromatous cases with the Sulphone drugs, a definite improvement has been noted in most cases. These drugs, therefore, mark a definite advance in the treatment of leprosy. They are specially valuable in the treatment of those cases of leprosy who cannot stand the injections of Hydnocarpus oil.

However, the improvement has been slow and not as marked as one would have expected from the reports of some other workers. Moreover, the drugs have definite limitations in that no improvement has been seen in the nerve pain and other neural symptoms. It is also yet too early to say whether the improvement will be of a permanent nature.

No serious toxic effects have been noted except for occasional gastric upsets, palpitation, and feeling of fatigue and general weakness specially with higher doses. In one of the cases, however, in the Promin group, signs of nephritis developed during treatment, and it had to be discontinued.

The drugs have a definite tendency to produce anæmia but in most cases the red cells and hæmoglobin can be maintained at a satisfactory level by interrupting the treatment after every two or three weeks, and, if necessary, by administration of iron, with or without liver. The treatment should, therefore, be regulated by periodic examination of blood. However, it is not necessary to do a complete blood examination, the purpose may be served by hæmoglobin estimations only since the fall in hæmoglobin and red blood cells is almost always parallel. The estimation of hæmoglobin is simpler, and the liability to technical errors and errors in calculation is less than in case of red cell counts.

The concentration of the drug in the blood with the doses used has never been found to be beyond 12 mgm. per 100 c c. in case of Promin, and beyond 3 mgm. per 100 c.c. in the case of Diasone and Sulphetrone. It is, therefore, concluded that although blood concentration levels may be estimated in cases under experimental treatment, that this procedure is not essential and that the treatment can very well be carried on without such estimations.

Summary.—1. Three groups of patients of leprosy of the lepromatous type have been treated wtih Promin, Diasone and Sulphetrone respectively.

2. The results obtained indicate that the Sulphone drugs mark a definite improvement in the therapeutics of leprosy. Most of the patients have improved under treatment, the improvement consisting of subsidence of leprous lesions, improvement in the eye-conditions, and healing up the leprous ulcers.

3. The treatment, however, has certain limitations, the drugs have had no effect on the nerve pains, nerve abscesses and other neural symptoms.

4. The drugs have been given in courses of 2 weeks' treatment with 1 week's rest. With this procedure no serious toxic symptoms have been seen. The anæmia resulting from the administration of the drugs has usually been slight and easily controllable by iron, with or without liver.

5. Concentration of the drugs with the doses used has always remained within certain limits. It is, therefore, not necessary to regulate the treatment by the estimation of blood concentrations of the drug during treatment.

6. The treatment of leprosy with the Sulphone drugs is considered quite safe. It is, however, necessary to regulate the treatment by periodic blood examinations. It is not necessary to do complete blood examinations, but the necessary information may be obtained by the estimation of hæmoglobin.

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Infective Hepatitis in North Burma

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THE observations outlined in this article are based on 131 admissions in an Indian General Hospital in North Burma during the period April to December, 1946. Data were collected and classified for the two main groups *i.e.*, British and Asiatic, (including Indian, Burmese and Japanese). The ratio of incidence was calculated as 2·25 to 1 Asiatic.

Incidence of Infective Hepatitis from April to December '46 is tabulated below :—

Month.	No. of Ind. & Bur. Troops Stationed.	Incidents in: Indian	Incidents in: Burmese	Total.	No. per 1,000 Troops.	Bri. Troops. No. Stat.	Bri. Troops. Incidence	Per 1,000 Troops.	*J. S. P. No. Stat.	*J. S. P. Incidence	Total Inci. each month.
April ...	—	8	—	8	—	—	3	—	—	—	11
May ...	16926	16	2	18	1.06	3733	3	0.86	4496	—	21
June ...	16422	14	1	15	0.91	2754	4	1.44	4273	—	19
July ...	16385	10	2	12	0.73	2723	4	1.44	3621	1	17
August ...	15132	9	—	9	0.59	2665	11	4.13	3154	—	20
Sept. ...	12399	2	—	2	0.15	2482	7	2.42	5216	—	9
October ...	12329	15	3	18	1.4	2432	2	0.81	5037	1	21
Nov. ...	9292	10	—	10	1.07	2108	3	1.42	4714	—	13
Dec. ...	8566	4	—	4	0.46	2178	5	2.29	4087	—	9
Total incidence for 9 months.	107451	88	8	96	0.82	21075	42	1.85	34598	2	140

* Japanese surrendered personnel—Not included in percentage incidence calculations.

From the clinical and pathological point of view the cases have been classified into two types (*a*) mild or benign, (*b*) acute or sub-acute fulminant. The majority of the cases recorded were of the mild variety.

Benign type.—Onset : Insidious upper abdominal symptoms as nausea, vomiting, flatulence and anorexia with or without hepatic area tenderness. Marked asthenia with disinclination to go through the normal daily routine of work. During the first few days of the illness the patients are ambulatory and rarely prefer to stay in bed.

Temperature : About three days after the onset of the [illegible] symptoms there is a short period of low grade evening temperature of about 100°F.

Jaundice :—Sets in on the 4th or 5th day of illness. The yellow colouration of urine is the first noticeable sign. The icteric tinge of the sclera and

* Specially contributed to THE ANTISEPTIC.

the palatal and sublingual mucosa is quite evident, differentiated from Mepacrine colouration by testing the urine for mepacrine excretion and bile.

Other signs: There is no enlargement of the liver in 50% of the cases though definite tenderness over the right hypochondrium is present. In the majority of the remaining cases there was tender hepatic enlargement to the extent of an inch. There was no evidence of lymphoadenopathy in any of the cases recorded.

Acute or subacute fulminant type.—Onset is usually sudden, the temperature varying between normal and 102°F. with signs of drowsiness or coma. Some of these cases are complicated with plasmodium vivax infection. The most important diagnostic sign in these cases is diminution of the area of normal hepatic dullness. The jaundice gets deeper and death occurs within 8–24 hrs. due to either cholæmic coma or cardiac failure. In some cases the acute phase supervenes during the course of a normal case of infective hepatitis. At autopsy such cases have been found with appearances typical of subacute hepatic necrosis. In this connection it would be interesting to mention about one case who gave a history of having suffered from infective hepatitis a few years ago, was admitted for ascites and later autopsy showed typical gross and histological changes of atrophic hepatic cirrhosis.

INVESTIGATIONS: (1) *Leucocytes*:—The total ranges between 6,000—11,000 per c.m.m. (normal 4,000—11,000, WHITBY and BRITTON,) with a lymphocyte differential up to 40%. The blood smears were searched for co-existing malarial infection also.

(2) *Blood sedimentation rate*: Most of the cases gave normal figures but in a few in the early acute phase of the disease the first hour figures have been up to 17 m.m. and the second hour up to 40 m.m. During the second week these figures reach normal standards, which is against malignant liver disease.

(3) *Blood*: Kahn Test has been negative. The few cases that gave a positive result have been found to have had Penicillin treatment for syphilis or having symptoms of current syphilis.

(4) *Van Den Bergh test* is direct positive and the majority are biphasic. The maximum recorded units were 18 (9 mgms.% bilirubin per 100 cc. of blood) and the icteric index ranged between 20—60. These figures return to normal during convalescence.

(5) (*a*) Sera of patients tested for agglutinins during the second week of illness gave *negative* results against the common strains of Leptospira. (Carried out at the School of Tropical Medicine, Calcutta.)

(*b*) *Aldehyde and Chopra*: Negative in all cases.

(6) *Blood urea*: Remains normal.

(7) *Urine*: Colour ranges from dark brown to port-wine colour. Froth layer on shaking is always yellow. Bile salts and pigments are present in one fatal case. Urobilinogen is present in pathological quantities (tested by Ehrlich's reagent). The test being positive in the cold requiring a little warmth. A rough quantitative test was carried out with various dilutions of the urine.

Microscopic evidence of the presence of albumin and the centrifuged deposit under D.G.I. have given negative results for lepto-

(8) *Animal inoculation*: Blood during the first week and urine during the second and third week of illness were inoculated intraperitoneally in guinea pigs to exclude leptospirosis. The animals remained unaffected.

DIAGNOSIS:—In this section attempt has only been made to exclude common conditions which have to be kept in mind.

(*a*) *Dyspepsia*: Gives upper abdominal symptoms but the diagnosis of infective hepatitis is established when fever and jaundice set in.

(*b*) *Malaria*: Gives a higher range of temperature with rigors, a characteristic periodicity, presence of parasites in the peripheral blood and response to anti-malarial treatment. The Van Den Bergh reaction in malarial hæmolytic jaundice is indirect positive (some controversy exists), whereas in infective hepatitis it's neither direct or biphasic.

(*c*) *Secondary syphilis*:—With diffuse hepatitis or hepatitis induced by arsenotherapy there has been either history of syphilis, serological evidence or physical signs such as characteristic adenopathy, rash, mucous patches, etc. Further the jaundice in these cases has been progressive and established.

(*d*) *Obstruction at the porta hepatis*:—Bile duct obstruction either internal as in intermittent biliary fever of charcot or external due to various conditions, *e.g.*, enlarged glands at the porta hepatitis (malignant metastases, glandular fever), tumour of the head of the pancreas, etc.

(*e*) *Yellow fever*: This condition was mainly excluded on epidemiological grounds and the absence of gross albuminuria, leucopænia, and tachycardia.

(*f*) Induced icteris by Mepacrine was excluded by testing the urine for the excretion of the drug.

The acute fulminant type of infective hepatitis which developed coma soon after hospitalization had to be differentiated from cerebral malaria, leptospirosis, cerebro-spinal fever and diabetes mellitus. The positive triple symptom complex of sudden onset of coma, jaundice and diminishing area of liver dullness with or without temperature, was in favour of infective hepatitis, whereas in cerebral malaria there was, in addition to the established findings, pulse of poor volume and tension due to the low blood pressure. Cerebro spinal fever was excluded by negative C.S.F. findings and diabetes by urine examination.

Leptospirosis was excluded by examining the blood and urine at the appropriate periods and by inoculating these intraperitoneally into guinea pigs and looking for leptospira in the peritoneal exudate. There is always a leucocytosis in leptospirosis. Among the cases reviewed there was one interesting case of duodenal carcinoma, with fever and jaundice, who died due to hæmorrhage. At autopsy a large indurated ulcer 2" wide was found in the duodenum with secondaries in the liver.

Course of illness.—Most of the cases recorded ran an uncomplicated course of 3–4 weeks once they escaped the onset of acute hepatic failure either at the beginning or during the middle of the illness. In a good few the period of illness was up to 6 weeks. In a small number of cases, where the condition was suspected early, diagnosed and treated, recovery has been

noticed in about seven days. But no case was considered fit for discharge from the hospital unless the following criteria were satisfied :—

Absence of bile salts, pigments and urobilonogen in urine.

Return to normal of blood bilirubin 1–2 Van Den Bergh units.

Absence of tenderness over the right hypochondrium.

Absence of asthenia and anorexia.

The cases discharged fit according to the above standards were given convalescence of one day for each day of hospitalization.

Mortality :—Among the series recorded the mortality rate was 2 132 cases i.e. 1·45%. (Assessed separately). Nil in 42 British patients and 2 in 88 Indian patients.

TREATMENT.—Every attempt was made at early diagnosis. Rest in bed was enforced with a view to avoid fatal complications like myocardial failure.

Fortification of liver with Glucose with about 5 units of Insulin once daily instituted in the early stages was found to give dramatic results. In some cases the urine was rendered bile-free in the first week itself. High protein diet in the form of chicken, eggs and fish was given as soon as reasonable appetite returned. Fresh fruits, multivitamin tablets were also given to the patients as a routine. The diet was as far as possible fat-free.

In spite of rigorous treatment and nursing on orthodox lines, the prognosis in acute fulminant cases reamined grave.

Two interesting autopsy case reports are appended below :—

Case 1.—*Brief clinical history* :—Patient aged 40 years, named J. R., was admitted for fever on 3rd June '46.

O.E. Positive findings were :—Temperature 102°F. Tenderness over the right hyperchondriac region. Spleen palpable. Rhonchi were heard over both the lungs. Plasmodium vivax rings were spotted in blood smear.

Was afebrile from 4-6-'46. On 6-6-'46, patient was restless and drowsy.

Pulse was 70 per minute. Temperature 97°F. Excepting for the absence of abdominal reflexes nothing abnormal could be detected in C.N.S.

7-6-'46 was comatose, deeply jaundiced and area of normal liver dullness diminished. Subconjunctival hæmorrhage seen in right eye.

Van Den Bergh :—Direct immediate positive. Indirect V.B. units 32 (16 m. grms % of bilirubin.) Patient expired on 7-6-'46. Intravenous Glucose Saline had no effect.

CLINICAL DIAGNOSIS.—Acute infective hepatitis.

Salient gross and microscopic appearances: *External apperance* :—A fairly well nourished individual of about 40 years of age. Not anæmic. Deeply jaundiced. A couple of hæmorrhagic spots seen over the right bulbar conjunctiva. Lymphs glands were not palpable.

Head :—Membranes and brain showed no macroscopic lesion.

Respiratory system : *Gross* :—Larynx, trachea and bronchi showed no naked eye lesion. Pleural cavities contained no fluid. Both the lungs were adherent to the parietal pleura at the diaphragmatic surface and posterior border. The upper lobe of the left lung and the right lung were crepitant.

Scattered irregularly over the right lung were small hæmorrhagic patches. The lower lobe of the left lung was not crepitant. All along the ridge of the left lung at the inter lobar septum were seen a band of bright red sub-pleural spots. Cut surface: Moist, bright red, small hæmorrhagic areas seen towards the peripheræ of both lungs. Bloody fluid could be expressed with ease. A piece of left lower lobe of lung did not sink in water.

Microscopic :—Showed marked engorgement of alveolar capillaries, with hæmorrhages into the alveoli. Numerous pigmented macrophages present. In some areas the alveoli were distended with R. B. Cs. and œdematous fluid.

Cardiovascular system: *Gross* :—The pericardium and cavity were normal. Over the epicardium of the right ventricle and at the right atrio-ventricular junction were seen dark red, minute hæmorrhagic spots. The left ventricle was well contracted. The papillary muscles of the left ventricle showed hæmorrhagic necrosis, were of reddish brown colour and soft. The coronaries were patent and valves were competent.

Microscopic :—Numerous large sub-epicardial hæmorrhages. The capillaries in the intermuscular septa congested, especially near the surface. The muscle fibres show cloudy swelling, loss of striation and fragmentation. There is some degree of œdema present. No cellular infiltration seen.

Alimentary system: *Gross* :—Tongue, tonsils and œsophagus showed no naked eye lesion. A couple of ounces of yellow coloured clear fluid was seen in the peritoneal cavity. The mesentery and the transverse mesocolon were greatly congested and showed a few bright red haemorrhagic spots. Over the mucous membrane of the stomach, were seen pin point hæmorrhages. 6″ distal to the ileocæcal junction was a bluish pink patch of hæmorrhage 4″ in length. An adult female round worm was recovered from the intestine.

Liver: *Gross* :—Was diminished in size. Weighed 40 ozs. Soft and friable. Subcapsular pin point hæmorrhages seen. Cut surface: moist, yellow, reddish mottling seen. Friable. Architecture obscured.

Microscopic :—Showed extensive parenchymatous destruction and necrosis. Groups of liver cell columns are seen scattered throughout the substance. The individual liver cells showed marked degenerative changes. The tissue remaining was connective, containing nuclear and cytoplasmic debris and some lymphocytes. Large areas of hæmorrhages and congested sinusoids could be seen. There is no evidence of either bile duct proliferation or of regeneration of liver cells. The portal tracts showed round cell infiltration.

Spleen: *Gross* :—Enlarged, weighed 12 ozs. Light grey in colour. Minute hæmorrhagic spots seen over the medial border. A rectangular patch of fibrinous adhesion seen over the capsule. Hard. Cut surface: Trabeculæ prominent.

Pancreas: *Gross* :—Was congested.

Urogenital system: *Gross* :—Kidneys were of normal size. Soft. Subcapsular hæmorrhagic spots seen over the left kidney. Cut surface: Pale and scaldy. Architecture obscured to a slight extent.

Microscopic :—Some degree of hypræmia present. A few of the glomeruli showed increased cellularity. A small amount of albuminous material and occasional R. B. Cs. seen in some of the subcapsular spaces. The tubular epithelium showed degenerative changes, the cells being granular and swollen, occluding the luminæ in many areas. No bile casts seen.

Urine from the bladder tested at autopsy was strongly positive for urobilonogen. (Ehrlich's reagent).

Adrenals:—Of normal size and appearance. (Captain Reddy has seen hæmorrhages in the adrenals in the series of Dr. A. A. Millar, (formerly Lt. Col.), while working with him.)

Histological diagnosis:—Acute hepatic necrosis in the course of acute infective hepatitis.

Case 2. Patient aged about 25 years of age, named B., was admitted on 15-11-'46 for fever with jaundice. Anorexia and vomiting were present before fever had set in.

Condition on admission:—Marked tenderness over the epigastric region. Liver palpable two fingers below the costal margin and was tender.

Investigations:—Urine: No bile salts. Bile pigments present.

D. G. I. examination of centrifuged deposit of urine was negative for leptospirosis. Blood smear showed no malarial parasites. Blood Khan negative.

21-11-'46:—Purpuric rash over the arms seen. Progressive deterioration of general condition. Patient was delirious, violent with signs of upper motor neurone lesion. Diminution in the area of liver dullness. Drowsy. Expired on 23-11-'46.

Gross and microscopic appearances: *External appearances*:—A well built adult of about 25 years of age. The skin, conjunctivæ and mucous membrane of mouth were deep yellow. Purpuric rash seen over the neck, arms and side of chest.

Head:—The durameter was bile stained. The pia-archnoid and brain showed no microscopic lesion.

Respiratory system:—Larynx, trachea and bronchi showed no naked eye lesion. The lungs were adherent at their diaphragmatic surfaces. Pleural cavities contained no fluid. Over the supero-lateral surface of the lungs were seen large brownish subpleural hæmorrhagic patches. Both the bases were not crepitant. Cut surface: Dark reddish. Moist. Bloody fluid could be expressed with ease.

Cardiovascular system: *Gross*:—The pericardium and pericardial cavity were normal. Scattered all over the heart were bright-red sub-epicardial spots of hæmorrhage. Bright-red spots of hæmorrhage were seen scattered all over the papillary muscles. No naked eye lesion seen in the coronaries, aorta and valves.

Microscopic:—Pericardium and epicardium showed fibrous thickening. One of the coronary arteries showed atheromatous change. The myocardial fibres appeared normal.

Alimentary system: *Gross*:—Tongue and tonsils showed no naked eye lesion. The mucous membrane of the œsophagus at the diaphragmatic entrance showed a large reddish patch of hæmorrhage. Distributed all over the mesentery, mesocolon, and greater and lesser omentum were hæmorrhages varying from bright-red colour to brownish colour of pin point to anna in size. The peritoneal cavity contained 1½ pints of yellow clear coloured fluid. All along the mesenteric attachment of the small intestine were seen subserous hæmorrhages. The mucous membrane of the stomach and intestines showed no macroscopic lesion. An adult female round worm was recovered from the bowel.

Liver:—Was slightly diminished in size. The surface was finely granular. Pin point subcapsular bluish spots all over the organ. The liver was soft and flabby. Cut surface: Deep yellow. Architecture obscured.

Microscopic:—Sections revealed extreme parenchyal degeneration. Only a few isolated broken columns of the original parenchyma could be identified. There were numerous areas of regeneration with large multinucleated swollen cells showing granularity and vacuolation. Some of these were in small clumps without any arranagement. The greater part of the tissue was œdematous connective tissue in which there was bile duct proliferation, areas of congestion and diffuse infiltration with polymorphs, lymphocytes, plasma cells and large pigmented macrophages. Bile stasis was also a marked feature.

Spleen:—Slightly enlarged. Cut surface: normal appearance.

Urogenital system: *Gross*:—The kidneys were swollen and soft. Capsule stripped with ease and stripped surface was smooth. Cut surface was pale and scaldy.

Microscopic:—There was marked hyperæmia of the glomeruli and inter-tubular capillaries. No increased cellularity of the glomeruli and no changes in Bowman's capsule were seen. The epithelium of the proximal and distal tubules showed intense cloudy swelling and granular change; in some instances the proximal convoluted tubules were blocked by swollen epithelium. A few bile casts were seen in the loops of Henle and in the conducting tubules. The naked eye and microscopic appearances of the organs were consistent with sub-acute hepatic necrosis in the sub-acute stage of infective hepatitis.

REMARKS.—In this article only observations on cases that passed through one particular General Hospital in North Burma are recorded.

Note:—(1) Racial incidence has been more among the British than among Asiatics. Deaths are more common amongst the Asiatics than the British.

(2) Early diagnosis and treatment were found to have made a lot of difference to the course of illness and prognosis.

(3) Acute hepatic necrosis with no evidence of infective hepatitis (proved histologically on autopsy) should be kept in view because in such cases death is sudden due to myocardial failure.

(4) Infective hepatitis is a systemic disease with predilection to the liver. The endotheliolytic toxin has hæmorrhagic properties, action on the serous membranes and the capillary endothelium. The end picture is one of acute or sub-acute necrosis of the liver cells taking place along with inflammatory changes as well.

As the above data have been collected under Field Service conditions with constant troop movements, it was not possible to follow up a card system of the patients to see how far the diseased liver of infective hepatitis precipitated early cirrhosis etc. It is also regretted that it was not possible to illustrate these observations with art painting and micro-photographs.

We are grateful to Colonel A. M. CHAUDHURI, O.B.E., for all the encouragement he has given us.

Outlines of Medical Treatment in General Practice with Recent Advances*

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Anæmias.—*The causes of anaemia* :—Castle's hypothesis is that the cause of anæmia is the want of extrinsic and intrinsic factors. The extrinsic factor is present in food articles like rice polishings, eggs, yeast and marmite etc. This factor has not been identified chemically and is supposed to be Folic acid, also called vitamin M complex. The absence of the intake of this vitamin is the common cause of the nutritional megalocytic anæmia. The intrinsic factor is produced by certain cells of the gastric mucosa and the absence of this results in Addisonian pernicious anæmia and achlorhydria. This factor is also known as *hæmopoietin* and its nature is unknown chemically.

The extrinsic and intrinsic factors combine to form an anti-anæmic principle which is carried by the blood stream from the stomach to the liver where it is stored and gradually liberated in the blood which carries it to the sinusoids of the bone marrow where the primitive cell hæmohistioblast under its influence, matures by passing through a series of intermediate stages into red blood corpuscle.

Deficiencies of iron, vitamin B complex, vitamin C, copper, manganese, protein and amino acids, contribute to causes of anæmia.

The following types of anæmias have been described :

(1) The nutritional megalocytic anæmia of the tropics. (2) Anæmia of pregnancy. (3) Addisonian pernicious anæmia. (4) The anæmias of sprue and idiopathic steatorrhœa. (5) Iron deficiency anæmia. (6) Hæmolytic anæmia. (7) Aplastic and achrestic anæmia—rare and often fatal. (8) Anæmias following gastric carcinoma and short circuiting intestinal operations.

Symptoms and signs :—Weakness, shortness of breath, anorexia, paleness, sore mouth, glossitis, diarrhœa, tingling of the extremities, pigmentation of the skin, sometimes jaundice, more often œdema due to hypoproteinæmia or cardiac failure; achlorhydria more common in pernicious anæmia which is also associated with subacute combined degeneration of the spinal cord and is relatively uncommon in India; intense hunger alternating with loss of appetite, vomiting, persistent heartburn, abdominal distension and flatulence, loss of weight, bulky white stool type of diarrhœa, point to sprue; dysphagia (Plummer-Vinson's syndrome) irritability, insomnia, difficulty in mental concentration, deformed nails (Koilonychia) are present in iron deficiency anæmia; fever, albuminuria, granular casts in urine, jaundice, splenomegaly, hæmoglobinuria result from destruction of red blood corpuscles in hæmolytic anæmia.

Anæmia may be caused or complicated by ankylostomiasis, malaria, hæmorrhoids, duodenal ulcer, myxoedema, scurvy.

TREATMENT :—To treat a case of anæmia successfully, one must find out the nature and the cause of the disease. It is always necessary to have blood examination done and medicines prescribed accordingly.

* Specially contributed to THE ANTISEPTIC

Rest :—This is essential in severe cases of anæmia. Fresh air, sunshine and diet should also receive proper attention and care.

Diet :—Diet should consist of easily digestible iron, rich and nutritious articles. A selection may be made from the following :—

Green leafy vegetables, eggs, meat, fish, soups, green peas, spinach, milk, dals, cabbage, cauliflower, potato, tomato, cucumber, orange, papaya, pineapple etc.

Medicines : *Iron* :—Luha-Asar (Alembic or Zandu) :—The writer is in the habit of prescribing this Ayurvedic preparation at the beginning of treatment. The taste of it is liked by patients, and it does not upset digestion or cause constipation or diarrhœa as is commonly seen when powerful preparation of iron is given. Dose 3 iv to ℥ i. T.D.S. Once the patient is confident and has improved under the injections of liver extract, prescribe.

℞ Ferri et Ammoni citr	...	gr. xxx.
Glycerine	...	ʒ iii.
Aqua ad	...	℥ iii.

As the patient continues to improve more powerful preparations of iron are prescribed and a selection may be made from anyone of the following:

℞ Ferrous Chloride	...	gr. x
Acid Hydrochlor dil	...	ʒ i
Liq. Arsenic	...	♏ x
Copper Sulph	...	gr. i/xxx
Manganese Chloride	...	gr. i/iii
Ext Cascara Sag Liq	...	ʒ i
Glycerine	...	ʒ iii
Aqua ad	...	℥ iii

℥ i. T.D.S. (Dhar).

℞ Ferri et Ammoni citr		ʒ i
Acid Hydrochlor dil	...	ʒ i
Liq Arsenic	...	♏ x
Syp Senna	...	ʒ iii
Aqua ad	...	℥ iii

℥ i. T.D.S. (Dhar).

℞ Ferri et Ammoni Citr.		ʒ p
Liq Bismuth	...	ʒ iii
Aqua ad	...	℥ iii

℥ i. T.D.S. Anæmia and diarrhœa.

℞ Ferri et Quinine Citr.		gr. xv.
Tr Nux Vomica	...	♏ xv
Syp. Auranti	...	ʒ ß
Aqua ad	...	℥ iii

℥ i. T.D.S. Malarial anæmia.

℞ Tr Ferri Perchlor	...	ʒ p
Acid Nitro Hydrochlor		ʒ p
Liq Strychnine	...	♏ xv
Spt Chloroform	...	ʒ p
Aqua ad	...	℥ iii

℥ i T.D.S. General tonic.

℞ Ferri Sulph	...	gr. vi
Acid Sulph	...	♏ xxx
Liq Arsenic	...	♏ x
Mag Sulph	...	ʒ i
Ammoni Chloride	...	gr. xx
Tr. Digitalis	...	ʒ i
Aqua ad	...	℥ iv

Three doses. Anæmia and oedema.

℞ Ferri et Ammoni Citr.		ʒ p
Sodi Bicarb	...	ʒ p
Tr. Nux Vomica	...	♏ x
Cas Evac (P.D.)	...	ʒ i
Aqua ad	...	℥ iii

℥ i. T.D.S. Anæmia and constipation.

℞ Quinine Sulph.	...	ʒ i
Ferri Sulph	...	ʒ i
Ext Nux Vomica	...	gr. vii
Acid Arseniosi	...	gr. i

Fill Capsules xxx; i. T.D.S. Malarial anæmia.

Iron can be given in pill form: Fersolate (Glaxo), Ferosan (Boots), Hæmatinic Plastules (John Wyeth), Bio Ferettes Tablets (T.C.F.) contain Vit-Amin B_1 in addition to Ferri Sulph. and appear to be a good preparation. All these tablets are handy and cheap.

Iron may be given in liquid form: Elixir Ferrone (Upjohn), Syp. Ferrous Chloride citrated (B. D. H.). Tonoferron (E.I.P.) is an Indian preparation and compares well with the foreign preparations. All these contain large doses of iron sufficient to regenerate blood.

Syp. Ferri Iodide is useful in children particularly when anæmia is associated with glandular enlargement. Dose 15—60 m.

Syp. Ferri Phos et Quinine et Strychnine and Ferilex (T.C.F.) are valuable in all anæmic and debilitated states that succeed severe infections.

Iron is to be taken after meals with a glass of water. Inform the patient that he will pass black stools.

It has been worked out that 3 ip of Ferri et Ammoni Citr per day increases hæmoglobin by 1% and 10 grains of Ferrous Sulphate per day increase it by 2%. Injections of iron are useless. But where just a tonic is required they are prescribed in the form of iron arsenite with strychnine or hæmocytin with iron (Cipla).

2. *Acids*:—Acid Hydrochloric is to be given in all cases of achlorhydria in any of the following forms: Anæmic patients usually suffer from asthmic dyspepsia. LEONARD WILLIAMS advises to add ♏ x of Liq Morphia to soothe the mucosa and enable it to tolerate the stimulating effects of HCl which in its absence is liable to cause so much local disturbances as to bring the patient back with the complaint that each dose of the medicine aggravates his suffering. This ingredient should be removed from the prescription after its few days' use.

℞ Acid Hydrochloric dil ... ʒ i
Liq Strychnine ... ♏ xv
Glycerine Pepsin ... ʒ iii
Liq Morphia ... ♏ xv
Aqua ad ... ʒ iii
ʒ i T.D.S

To this Liq. Arsenic, Quinine Hydrochlorate and Tr. Ferri Perchloride may be added.

℞ Pepsin Porci ... gr. vi
Acid Nitro Hydrochlor dil ♏ xv
Tr. Nux ... ♏ xv
Inf. Calumba ... ʒ iii
Aqua ad ... ʒ iii
ʒ i T. D. S. after food.

℞ Acid Nitro Hydro dil ♏ xlv
Liq. Strychnine ♏ x
Inf. Gentian ... ʒ iii
Aqua ad ... ʒ iii
ʒ i T D. S

3. *Liver Extract*:—Liver Extract has been used in all types of anæmia but is more useful in pernicious anæmia and sub-acute continued degeneration of the spinal cord. The selection of the preparation and the dose is the personal matter of physicians. Injections are better and response rapid and any of the following preparations may be used;

Heporol Forte (C.D.C.), Neo Liveron (Union), Hepastab (Boots), Liver Extract (P.D.), Liverex (Bengal Immunity), Examen (Glaxo), Anahæmin (B.D.H.), Erythgen (Carnick) etc.

In fact every manufacturer has come forward with a liver extract preparation.

The writer has a partiality for Heporol Forte (C.D.C.). The injection is to be given intramuscularly. Intravenous injection should be given according to the directions of the manufacturer. The same remark applies to the dose which usually is 2 c.c.—10 c c. Fifteen to twenty or even more number of injections may be necessary.

Reactions from Liver Extract injections: These reactions are allergic. Urticaria, colicky pains in abdomen, flushing, dyspnoea, and an attack of asthma may be precipitated by an injection of Liver Extract. Recently the writer injected 2 c.c. of Vitamin B complex Liver Extract(Arcies) supplied as a sample, to a well-built Pathan who immediately complained of headache, nausea, suffocating sensation. Soon he cried and collapsed with free perspiration and cold skin. He became unconscious and saliva began to trickle from his mouth.

His eye balls rolled up into eye sockets and the patient appeared to die. An injection of Adrenalin brought the patient to consciousness. Hepastab Forte (Boots) has given rise to attacks of urticaria in some patients treated by the writer. Similarly T.C.F. Liver Extract has given rise to itching in hands and feet. The only preparation which has been extensively used by the writer and has not given rise to any reaction is Heporal Forte (C.D.C.). One who has experienced such reactions can only imagine what tact and resourcefulness are required to pacify the patient and his relatives. But such reactions cannot be foretold and depend upon personal idiosyncracy of the patient. Allergic reactions require Adrenalin by injection and Ephedrine and Calcium by mouth. Change of the preparation may be necessary.

Liver may be given orally in the form of liver juice or sandwitches. It may be taken lightly cooked with meals. Prohepex (T.C.F.) proteolysed liver powder is also useful.

4. *Hog's stomach preparations*:—Pernicious anæmia is treated with these preparations and the result is good. Ventriculin (P.D.) Pepsac (Boots) and Extomak (Banger) etc. may be prescribed.

5. *Nicotinic Acid, vitamin B complex*.—These preparations should be given from the very beginning. They are useful for glossitis, diarrhœa and neuralgia. Cases who do not respond to liver and iron, improve when either Nicotinic Acid or Vitamin B Complex is administered. Vitamin B Complex (T.C.F.), Vitalyn (C.D.C.), Pelonin (Glaxo), Niconin (Alembic), etc. may be used. Multivitamins, *e.g.*, vitaminets and vitamin C are also useful. In women and children Calcium with Vitamin D *e.g.* Calcyn (C.D.C.) or an injection of Ostelin Forte (Glaxo) for rickets is excellent.

6. *Autohaemotherapy*:—The results with autohæmotherapy are also excellent. It should be carried out in those patients who do not improve on the above line of treatment which is rare. But in poor patients who

cannot afford to go for Liver Extracts, etc., autohæmotherapy gives excellent results.

7. *Transfusion of blood*:—It is indicated in severe cases of anæmia and should be performed by one who knows the proper procedure and technique.

SYMPTOMATIC TREATMENT:—*Constipation*:

℞ Ferri Sulph ... gr. vi
Acid Sulph dil ... ♏ xx
Mag Sulph ... ʒ ii
Tr Nux Vomica ... ♏ xv
Aqua ad ... ʒ iii
ʒ i. T.D.S. after meals.

Diarrhœa:—Ahfinasara (Alembic or Zandu) is good in diarrhœa of pregnancy associated with anæmia. Dose ʒp. T.D.S.

℞ Acid Hydrochlor dil ... ʒ p–ʒ i
Liq Morphia ... ♏ xx
Tr Ferri ... ʒ i
Aqua ad ... ʒ iii

℞ Ferri et Ammoni Citr ... ʒ p
Sodi Bicarb ... ʒ p
Liq Bismuth et Ammoni Citr ... ʒ iii
Spt Ammoni Arom ... ʒ p
Aqua ad ʒ i T.D.S. ... ʒ iii

℞ Tr Ferri Perchlor ... ♏ xlv
Acid Nitro Hydrochlor dil ... ♏ xxx
Tr Gentian Co ... ♏ xlv
Inf. Calumba ... ʒ iii
ʒ i. Thrice daily.

Oedema:—

℞ Ammoni Chloride ... gr. xxx
Ferri Sulph ... gr. vi
Tr Digitalis ... ʒ p–ʒ i
Acid Sulph dil ... ♏ xxx
Mag Sulph ... ʒ ii
Aqua ad ... ʒ iii
ʒ i. T.D.S.

Inject Neptal 1–2 c.c. or Esidrone (Ciba) 2 c.c. intramuscularly twice a week or as required.

Malaria:—Treat with antimalarial drugs as Quinine, Atebrine and Plasmoquine.

Myxoedema:—Thyroid is specific.

Ankylostomiasis:—Give Tetrachlorethylene 4 c.c. in 2 ounces of concentrated Sodi Sulph Solution.

Amœbic dysentery:—Requires Emetine injections.

Some Practical Hints on the Examination and Diagnosis of Eye Diseases*

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BEFORE commencing with the examination of the eyes and before any question is put to the patient, observe the general appearance, the attitude and the gait of the patient as he approaches you for examination, as, a clue to the diagnosis of many a disease can be obtained thereby, as in the following.

Optic atrophy.—In this disease, the patient walks with his eyes widely opened trying to get as much light as possible and his head is always turned towards the direction of a light, such as a window.

In retinitis the reverse is the case; the patient avoids light and turns his head away from the source of light, and his eyes are not widely opened but he squeezes them.

In acute glaucoma the patient comes with a drooping head held between his hands and suffering great agony and pain in the head.

In acute iritis and ulcers of the cornea the patients come to you with their eyes shut and in great pain but no headache. The hand is put on the affected eye to keep it closed but the head is not pressed between the two hands as in glaucoma. Patients with *trachoma or granular lids* have a drowsy appearance owing to the heavy lids drooping down and the lids appear inflamed and there is great deal of watering of the eyes. A weak, anæmic, rickety child lying quietly on his mother's shoulder is probably suffering from *keratomalacia*; whereas a child healthy-looking crying even when slightly moved, and with his eyes very tightly shut, refusing examination, has probably *ulcers of the cornea*. If 2 or 3 brothers or sisters or inmates of a school come together with their hands shading their eyes they have in all probability *conjunctivitis*.

The above observations will only help you to arrive at a diagnosis which must be confirmed by the further examination; but before doing so, the history as to the origin, duration and progress of the disease as well as the occupation of the patient will help much to arrive at a correct diagnosis. For instance, a history of trauma will at once guide you to search for a foreign body or its after-effects such as abrasion, ulcer, perforation of cornea, prolapse of iris, perforation of sclera, dislocation of lens, hæmorrhage in anterior chamber or even in vitreous according to the severity and the nature of the injury.

Occupational diseases are *foreign body* in fitters, turners, boiler-makers, stone-grinders, masons and others who are exposed to such injuries. Miners suffer from *nystagmus* owing to the peculiar lying down position in which they have to work and also due to the deficient light in the mines. Clerks, draughtsman, watchmakers, those using the microscope for long hours etc. have some *error of refraction*. History of specific disease, rheumatism etc. will also help as in cases of *iritis, interstitial keratitis etc.*

* Specially contributed to THE ANTISEPTIC.

Now having made these general observations we proceed to examine the eye and here I must impress the importance of examining each and every structure before giving the diagnosis. The first and the most important—especially in hospital practice—is to *evert the lids*, as the majority of our hospital patients have granular lids. After the lids, see the margins for blepharitis, trichiasis, districhiasis, entropion or a stye or a cyst.

The following points will help to distinguish between a stye and a cyst: *A stye* being an inflammation of the tissues about the hair follicle is generally found at the margin of the lids, whereas *a cyst* being an inflammation of one of the Meibomian glands due to the stoppage of its duct is generally found on the under surface (conjunctival) of the lids. *In stye* there is great pain, tenderness and often considerable œdema, the whole lid being swollen, which is not found in *a cyst* which appears as a hard swelling or nodule with a circumscribed injection, and adherent to the tarsus but not to the skin.

After having examined the lids, we see the conjunctivae. If there is any injection, we must distinguish whether the injection is ciliary or conjunctival. (This being very well described in Text Books, I will not touch upon it here.) If the injection is ciliary we proceed to find the cause. Ciliary injection always accompanies diseases of the cornea, iris or ciliary body. If the injection is conjunctival we distinguish between the different varieties of conjunctivitis.

Here I will mention some *points to distinguish between pterygium, pinguecula and phlyctenular conjunctivitis* which I have often noticed being mistaken one for the other.

Pinguecula is a hyaline degeneration of the episcleral tissue, taking the form of a fatty-looking spot lying in the conjunctiva at the inner or outer limbus and possessing a slightly yellow colour. The conjunctiva is quite normal here and not hyperæmic as in *phlyctenular conjunctivitis* where we notice a circumscribed inflammation of the conjunctiva with the formation of one or more small red nodules at the limbus. The former appears after the age of forty and the latter is generally found in children.

Pterygium is a vascular membrane which extends from the inner or outer part of the ocular conjunctiva towards the centre of the cornea in the form of a triangle with its apex towards the cornea. It is generally found in adults and especially in those who are exposed to smoke, dust, etc.

Xerosis is another disease which is often mistaken for one of the above. In this disease the conjunctiva loses its shining and moist aspect. Somewhat thickened, it becomes dirty, opaque and covered with white and dry foam which is generally found either at the inner or outer limbus. It occurs in badly nourished children as well as adults.

Then we proceed to examine **the cornea**, especially when ciliary injection has been noticed in our examination of the conjunctiva. Here we may find a foreign body, an abrasion, an ulcer or some form of keratitis or an opacity of the cornea (leucoma). *A corneal ulcer can be distinguished from an opacity* by the presence of pain, ciliary injection, photophobia and staining with fluorescein, none of which is found in an opacity of the cornea.

After having seen the cornea we go on to the **iris**.—We first look at the pupil whether it is normal in size, dilated or contracted or irregular or there may be a coloboma (as after cataract extraction or after an iridectomy for an artificial pupil or for glaucoma).

A dilated pupil is seen very markedly in glaucoma in which it is oval. But the diagnosis of glaucoma should not be made only from the dilated pupil as this may have been done by mydriatic drugs put in for the purpose of treating some disease of the cornea, iris, etc., as ulcers iritis or for estimating errors of refraction. In such cases always look for the tension of the eyes as also the other signs of glaucoma such as shallow anterior chamber, œdema of cornea, ciliary injection and history of headaches. Dilated pupils are also seen in *myopia and optic atrophy*. The following points will enable you to distinguish the above from the dilated pupil of glaucoma (especially in simple chronic glaucoma where there is no ciliary injection and no history of severe headache).

In glaucoma the pupil is oval and does not respond to light *i.e.*, has no reaction.

In myopia the pupil is round and moderately dilated and has very good reaction.

In optic atrophy the pupil is moderately dilated and round but has very sluggish reaction. Of course all the above three diseases can be diagnosed with certainty by the ophthalmoscopic examination of the fundus which is quite typical in each of them.

An irregular pupil is found in iritis, iridocyclitis, traumatic or specific; this is caused by the adhesion of the iris to the anterior surface of the lens (posterior synechiæ). It is quite possible that if the patient is seen within the first few days of an attack of iritis the irregularity of the pupil cannot be well seen unless the pupil is dilated by a mydriatic. Before putting a mydriatic in cases where there is ciliary injection, photophobia and pain, every care should be taken to make sure that it is not glaucoma as otherwise disastrous results will follow. We often find difficulty in *diagnosing between iritis* and *conjunctivitis* especially when no mydriatic is used to bring into prominence the irregularity of the pupil. *In such cases the following points will clear the doubt*:—(1) the pain in iritis is of a neuralgic character, whereas the pain, if there is any, in conjunctivitis is like that of a foreign body in the eye; (2) there is ciliary injection in iritis and conjunctival injection in conjunctivitis; (3) there is no discharge in iritis whereas in conjunctivitis there is a mucopurulent discharge, especially in the morning when the lids are glued together by the discharge; and (4) the most important is the appearance of the iris. In iritis the pattern of the iris is lost and it appears muddy whereas in conjunctivitis it is perfectly normal.

Lastly we examine the **lens** to see if it is *transparent or cataractous*, and *normally situated or dislocated* either into the anterior chamber or into the vitreous. If the lens is dislocated in the vitreous the eye becomes aphakic and hence will require plus glasses to improve the vision; the iris in these cases becomes tremulous owing to the loss of support of the lens. If the lens is cataractous see if it is senile, traumatic or soft cataract. When a cataract is diagnosed the most important point to determine is whether it is operable.

A cataract is fit for operation if it satisfies the following points:—
(1) *Vision* which should be less than three feet showing that the whole lens has become opaque, and there should be no shadow of the iris on the lens;

(2) *the reaction of the pupil to light* must be good showing that the optic nerve is normal;

(3) *the projection to light* must be good in all directions showing that the retina is healthy;

(4) *the lids* must be clean and if they are trachomatous they should be treated before operating for the cataract; and,

(5) *the lachrymal sac* must be clean as dacryocystitis is a contra-indication and the sac must be removed before extracting the lens.

Lastly those cases in which there is no disease found on external examination but who complain of failing vision or headache etc., should be examined in the dark room with the ophthalmoscope for some *disease of the fundus or errors of refraction*. In such cases the vision of each eye should be tested separately and then the pupils dilated with homatropine after noting the reaction of the pupils to light and the projection of light in all meridians.

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Cases and Comments

Psychoneurotic Cases

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ONCE I was called to treat a case of post-partum haemorrhage in a village ten miles away from my dispensary. I went there and finished the treatment. As I was about to return to the station there came a man requesting me to see a case who was breathing her last, as he said. I hurried there with all my equipments. I saw the lady aged about twenty years lying in bed with eyes closed breathing shallow, pulse regular and bounding and not speaking anything. I asked about the previous history and I was told that she was suffering from fits which were coming at an interval of every eight to ten minutes for the last 6 - 7 days. The fits were of such a nature that five men were needed to hold her in position. She was treated for the same by many local doctors and others. While I was hearing the history fits started again. During fits nobody was allowed to touch her. She became quiet after the fits were over and opened her eyes but could not speak. I examined her in every respect but nothing abnormal was found. I thought it to be a case of psychoneurosis and decided to give Calcium-Gluconate 10 % 10 c.c. inj. (I.V.) as I always used to do in such cases. As she was not able to speak I persuaded her to speak after the injection because its power was very great and it was the last remedy. I was as sure as anything, injected about half of it and she called

her husband to be near. As she was feeling the warming effect of the injection, she wanted water to drink. Having drunk water and tea at last she felt better. She was given tonic and sedative mixture for a few days more.

Afterwards I met her husband to inquire into the personal matter and I was told that both of them did not find satisfaction in the house and not treated well by their parents. I advised them to live separately. They put it in action in a day or so and lived a happy life since then.

2nd Case:—While I was about to go to visit a case of pneumonia there came hurriedly a man with a note from a friend to go over to his place as early as possible as the lady was bleeding per vagina on account of the prick of a horn of a buffallow while passing by. She was also not speaking and was under the effect of so-called tetanus. Having read the note, I went there and saw the lady lying in bed, eyes closed and breathing calmly. I tried to awaken her but could not do so. I examined her pulse but nothing abnormal was found. There was slight oozing of blood from vaginal lacerations. I thought it to be a case of psychoneurosis. As the patient was not able to speak I gave the same instructions loudly so that she could hear well. She should speak after the injection was ever, otherwise her throat would be cut open. Then Calcium-Gluconate injection 10 %, 10 c.c. (I.V.) was given and just after the injection she cried loudly and sat up from the bed to have some water to drink. Everybody was astonished at this and began to ask many a thing. She was given coffee and tonic mixture afterwards.

In this case she had become temporarily unconscious simply because she might have become afraid of bleeding of the private parts.

3rd Case:—A patient bleeding per vagina, due to miscarriage, was brought to my dispensary in a semi-conscious state. Her husband told me that it was the fourth abortion and for the same she had consulted many doctors. The treatment was continued after the third abortion and she was impressed much by the doctor that she would not meet any further mishaps again. She was also particulary anxious about that. I examined her but nothing wrong was found. Having thought it to be a case of psychoneurosis I gave Calcium-Gluconate injection 10 % 10 c.c. with the same line of treatment as in the above two cases and she responded early. Afterwards she was put on tonic mixture.

This seemed to be a case of a disappointed heart.

Jawahar Bazar, Mosar Road,
Dist. Baroda.

Puerperal Septicæmia

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PUERPERAL septicæmia or puerperal fever is a septic condition which follows labour. It is always associated with a rise of temperature and marked constitutional disturbance. Between the 2nd and 4th day after delivery there occurs usually a rigor accompanied with a feeling of mental depression, a backache and a general malaise. Soon the temperature begins to rise and reaches between 101° and 105°F. The pulse rate runs upto 100 and 140 a minute, out of all proportion to the temperature. The respiration too becomes increased in frequency reaching 25 to 40 or more in the minute. The face wears a sickly and anxious expression. The tongue is coated being brownish at the middle and back and bright red at the tip. The breath is offensive and the skin is covered with a cold, clammy sweat. Intelligence may not be affected or there may be a low muttering delirium. In severe cases the lochial discharges cease completely or they may be dirty brown in colour and have highly offensive odour. There may be tenderness over the abdomen which may be tympanitic; where peritonitis has developed there will be great pain aggravated by pressure and vomiting. Diarrhœa may occur and the milk secretion ceases. At this stage rigors become more frequent with the absorption of fresh doses of the toxin and there may be pains of a rheumatoid nature in the big joints. As the peritonitis becomes general the abdominal pain becomes severe and spreads upwards. The intestines become filled with flatus, the abdominal walls become rigid and the breathing assumes a thoracic character. The patient lies in the dorsal attitude with her knees drawn up and her hands supporting the bed clothes. Vomiting, a rapid pulse, irregular breathing and diarrhœa continue, while the temperature ranges between 102° and 105°F. The vomited matter at first consists of the contents of the stomach but later on it becomes bilious and finally fæculent in character. When the vulva and vagina are the parts particularly affected, the septic infection has probably taken place through some laceration of their tissues.

(1) Labour is delayed the presenting head of the foetus firmly impacted in the vagina, the vaginal lining membrane thus pressed on suffer considerable damage to their vitality.

(2) The uterus and Fallopian tubes come to be the starting point of the septic process, *i.e.*, an endometritis or salphingitis commences resulting in fetid condition of the lochia, a marked rise in temperature, a copious purulent discharge and great local tenderness.

(3) When the septic process involves the cellular tissue it is generally located in utero-sacral and the utero-vesical ligaments popularly known as pelvic cellulitis or parametritis.

(4) The peritoneum may be the seat of the affection in puerperal septicæmia; when it occurs in the peritoneal covering over the front of the uterus it is known as anterior perimetritis.

(5) Septicæmia lymphatic—involving the lymphatic vessels *e.g.* high temperature, severe pains and swellings.

(6) Septicæmia venosa—consists in the formation of septic thrombi in the veins generally, associated with a septic inflammation of the vessel walls.

(7) Sapræmia—absorption of a moderate dose of a mild toxin which is formed at the seat of the infection.

Case I. Mrs. B.S., H.,F., 20, primipara had a normal delivery in which a native *dai* attended and supervised the operation without due regard to cleanliness of hand and clothes of the nurse and the patient. Two days after delivery there occurred a rigor accompanied by backache and a general feeling of malaise. Soon the temperature began to rise to 100·4°F and reached 105°F in about 4 hours with the pulse rate of 130 p.m. and the respiration became increased in frequency to 40 p.m. The face wore an anxious expression, the tongue was coated being brownish at the middle and back and bright-red at the tip. The breath was very offensive and patient was constipated. Her intelligence was not affected. Her lochial discharge became dirty brown in colour, stained linen and became of a highly offensive odour. The milk secretion did not cease altogether. Now the rigors became more frequent and she complained of rheumatic pains in her knees and ankles. Patient vomited twice which consisted at first of the contents of the stomach and later on it became bilious. Her abdomen was tymphanitic. Blood was examined and no malarial parasites could be detected. Her temperature ranged between 102°F and 105°F.

Case II. A.B..M.,F., 25, a multipara, was a case of retention of the placenta within the uterine cavity and post-partum hæmorrhage due to mismanagement in the third stage of labour *i.e.* improper application of Crede's method. Administering a little Chloroform and introducing the hand within the uterus after purification of hands and forearms and applying some lubricants and putting the tips of the fingers together so as to make the right hand cone-shaped, the hand is passed into vagina along its posterior wall and the left hand is placed over the fundus uteri externally. Next the tips of his internal fingers are inserted into the cervix, the dorsum of the hand being directed against the uterine wall and the palm towards the placental substance and thus he insinuates his hand between the placenta and the wall of the uterus, detaching it slowly taking care to bring away the whole of the membrane at the same time. Patient had a rigor attended by backache, headache and malaise and her temperature rose to 100°F, her temperature was irregular between 100·4° and 99°F and her lochia became fetid. Patient was constipated, and there was anorexia and her abdomen was tympanitic.

TREATMENT:—A careful record kept of both temperature and pulse rate and abdomen palpated to discover the state of the uterus and any signs of tenderness. The lochia should be examined constantly as to colour, odour and quantity. Examine perineum for any tear. Next examine the cervix for any laceration. Absolute rest should be enjoined. Support the patient's strength and increase the vitality and resisting power of her tissues.

Case I.—Polyvalent anti-streptococcic serum 30 c.c. administered I.M. morning. Tympanites relieved by an enema of 1½ pints soap and water at 106 to which a drachm of turpentine is added. Mist Alkaline 1 oz. every 4 hours. Soluseptasine 20%, 10 c.c. I.M. evening. For tympanites turpentine stoups and antiphlogistine to abdomen. Hot Dettol douche 2 pints used to douche out the vagina, and introduced into the uterine cavity the following: Tinct. Iodine Metis cum Glycerine (1 in 9) by a soft rubber catheter (sterile) to which a syringe was attached. Vit. C. (Celin) 1 c.c. ampoule 500 mg. was given I.M. injection. Temperature 101°F,

pulse 110, respiration 28 per minute. Diet: barley water, fruit juice, plenty of fluids with Glucose D.

2nd day. Soluseptasine 20%, 10 c.c. I.M. Mist Alkaline 1 oz T.D.S. Septanilam tablets 1 every 4 hours. Glucose 25%, 25 c.c. with Vit. B_1 (Benerva) 50 mg. per c.c. I.V. Hot Dettol vaginal douche 2 pints and injected the following: Tinct. Iodine cum Glycerine into uterine cavity. Septanilam tablet 1 every 4 hours also given. Temperature 100°F, pulse 100, respiration 25 per minute, bowels 1, urine copious, lochial discharge started not so offensive and stained cloth dirty-brown. Diet, same as above plus Horlick's milk.

3rd day. Soluseptasine 20%, 10 c.c. I.M. Septanilam tablet 1 every 4 hours. Mist. Alkaline 1 oz. T.D.S. Hot Dettol douche 2 pints to wash out vagina. Injected Tinct. Iodine cum Glycerine into uterine cavity. Bowels moved by soap-water enema 2 pints. Temperature 99°F, pulse 95, respiration 22 per minute. Diet, Horlick's milk, vegetable soup, biscuits and tea. Lochia odourless.

4th day. Soluseptasine 20%, 10 c.c. I.M. Septanilam 1 tablet every 4 hours. Mist. Alkaline 1 oz T.D.S. Injected Glucose 25%, 25 c.c. with Vit. B_1 1 c.c. and Vit. C, 1 c.c. I.V. Hot vaginal Dettol douche and injected Tinct. Iodine cum Glycerine into uterine cavity. Temperature 98°F, pulse 90, respiration 22 per minute, bowels 1, urine copious, lochia odourless. Diet, Horlick's milk, biscuits and vegetable soup plus fruits.

The same line of treatment was continued for 2 more days and the patient was discharged cured.

Case II. Pituitary 1 c.c. I.M., Normal Saline 1½ pints, Glucose 5 with Coramine 1.7 c.c. I.V. Uterus tightly plugged with Acriflavine Glycerine gauze, plugging the vagina at the same time. It excites uterine contraction, favours formation of coagula and thereby stops the haemorrhage. Patient put to bed under charge of a nurse. Enema of Boyril, water and a little brandy administered. Tinct. Ergotae Ammoniata ℥ i administered. Temperature 100°F, pulse 100, respiration 25, urine passed freely; bowels did not move. Diet: barley water with glucose and orange juice.

2nd day. Plugs removed. Hot Dettol douche 2 pints given per vagina and Tinct. Iodine cum Glycerine injected into uterine cavity. Soluseptasine 20%, 10 c.c. I.M. Mist. Alkaline 1 oz. T.D.S. Septanilam tablet 1 every 4 hours. Glucose 25%, 25 c.c., Calcium Gluconate 10%, 5 c.c. and Vit. C (Celin 500 mg. in 1 c.c.) I.V. Bowels opened by Glycerine enema. Temperature 99°F, pulse 100, respiration 22, urine free; lochia not fetid. Diet: Horlick's milk, biscuits and vegetable soup.

3rd day. Same treatment continued except Glucose cum Calcium injection. Temperature 97·4°F, pulse 90, respiration 20, bowels 1, urine free, lochia normal. Diet: bread and milk. Patient discharged cured.

TREATMENT:—Penicillin treatment for puerperal septicaemia. 5 million units of Penicillin by intramuscular injection divided into 40,000 units dosage every 3 hours gave better results in my hands.

Reference:

O. St. John Moses—Manual of Obstetrics, 1950.

41, Baghbazar Street,
Calcutta.

Hiccough as one of the Forms of Malignant Malaria

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THE different forms that pernicious malaria may take are almost unlimited. Hiccough as one of the forms of pernicious malaria is rare. Recently 3 cases of hiccough were admitted into this hospital. For 2 days the patients were given various injections and drugs to control the unending hiccough, but to no effect. When blood was examined malignant and benign tertian infections were detected.

Hiccough in most cases is transient and of little importance, but it is of grave prognostic importance when it sets in as a complication and does not respond to treatment.

History:—R. Khan, a young man, was admitted in this hospital for hiccough. He had no other complaint. For the last 7 days prior to his admission he had occasional attacks of hiccough which lasted for 6-8 hours. He was drenched with perspiration after each attack; it was so violent in nature. Hardly would he remain at rest for 3-4 hours, when again he was thrown into fits of hiccough.

On examination nothing very abnormal was detected. I tried the following medicines one by one for 3 days:

(1)

Menthol	...	gr. ½
Chlorbutol	...	gr. 2
Calomel	...	gr. 1/6
Sodi Bicarb	...	gr. 2

Ft. Pulv. One pulv every 4 hours.

(2) Atropine Sulph—gr. 1/60—Hypodermic injection.

(3) Glucose 25% 50 c.c., I.V. injection.

(4) Mustard plaster on the epigastrium.

(5)

Chloral Hydrate	...	gr. xv
Pot Bromide	...	gr. x
Tr. Belladonna	...	♏ v
Aqua Menthpip ad	...	℥ i

(6) Soap water + Castor oil + Glycerine Enema.

(7) Glucose 50% 25 c.c.+Sodii Bicarb 7½% 25 c.c.—I.V. injection.

(8)

Cocain Hydrochlor	...	gr. ¼
Chlorbutal	...	gr. v
Lactosum	...	gr. x

(9) Chloroform ♏ ii—♏ iii given with lump of sugar.

(10) Atropine 1/100 gr., Morphine ¼ gr. Hypodermically.

All the above medicines tried one by one did not give any satisfactory result.

Other village medicines were also tried when blood examination revealed malarial infection. Quinine Bihydrochloride 10 grs. in 2 c.c. was given intragluteally followed by Paludrine tablets.

To our great surprise the patient was cured of this trouble and was discharged after a few days.

Case 2. Sukhdeo, a debilitated young man with enlarged spleen was admitted into this hospital on 27-11-'47. On blood examination mixed infection of M.T. & B.T. was detected.

After soap water enema, he was injected Quinine Bihyperchloride 10 grs. in 2 c.c. But in this case Quinine administration did not prove to be so efficacious as in case No. 1. In the evening of 28-11-'47 when hiccough did not stop Morphine ¼ gr. + Atropine gr. 1 100 was given which stopped hiccough. However antimalarial treatment was continued for a week and the patient was discharged cured on 1-12-'47.

Case 3. Munshi, a young man, was admitted into this hospital with history of occasional fever which started with rigour. On examination a huge and hard spleen was detected. Blood examination revealed mixed infection of M.T. & B.T.

On Quinine injection the hiccough stopped, but again relapsed after 2 days. After soap-water enema it again subsided and never recurred again. Antimalarial treatment was continued for 3 days and the patient was discharged cured.

Conclusion.—(1) Hiccough as one of the forms of malignant malaria is rare.

(2) In all cases of hiccough bowels should be cleaned thoroughly.

(3) Quinine administration proved to be successful except in case No. 2.

Syphilitic Ulcers on the Chest

S. LAKSHMINARASIMHACHARI, M.B.S. (Behar),
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I LIKE to report this case which would be of some help to my medical friends. It happened while I was practising with Dr. G. V. NARASIMHA RAO, L.M.P. in his hospital at Nakrekal and it urged me to a great extent to take to medicine for my career.

General condition.—A male patient, aged about 45 years, stepped into the hospital emitting an extraordinarily bad smell from his body. We were unable to breathe in the hospital compartment and checked him from moving forward any more. He removed all his wrapped clothes off on request.

He had innumerable ulcers, big in size, from neck to the abdomen, each situated on nearly one inch space, running lot of pus and blood. They were about half inch deep into the chest portion.

History.—We came to know on enquiry that the patient had been suffering since 3 years from the disease and the treatments, which were advised to be matchless and uncommon by the village doctors, were all in vain, having made him completely disappointed and hopeless, though he had used some useful preparations of Ayurvedic therapy. We elicited by enquiry that the patient once suffered from a venereal disease which was cured after a long time about 6 years ago. Still there is some effect of the same but it is negligible.

DIAGNOSIS.—From this background, we jumped to the conclusion that it must be a syphilitic one which requires a particular treatment.

TREATMENT.—The patient was at first advised to have the "Penicillin" treatment which is expensive. As he was a villager having no idea of allopathic treatment he refused, but he was allowed to consider the matter and after a week he rushed to us asking us to commence the treatment. Generally the villagers hesitate to spend money even to safeguard their own health.

On the same day he was put on Penicillin treatment. Five injections of Penicillin (Glaxo) in 8000 unit doses every 3 hours were given intramuscularly. From the next day two tablets of Cibazol morning and evening were prescribed, and the same ointment for the external application. This mode of treatment cured all the dangerous painful ulcers completely leaving scars on the place except one full of pus at the centre space of the chest within one week. The patient was sent to his native place on request with 12 tablets of Niacinamide, exhorting him to use two tablets by morning and evening for 6 days. After the said time the patient returned to us and showed his scars. Only one ulcer was still pussy. Now we thought it better to give one more course of Penicillin for complete cure. Accordingly it was done.

On the next day of the second admininistration of the admirable Penicillin even that ulcer entirely healed and there was no symptom of abscess. Thus, the whole part of the affected area was miraculously cured. Now the patient is feeling quite well.

Result.—(1) The chronic syphilitic ulcers are successfully cured by Penicillin administration.

(2) The Sulphonamide preparations may be used as adjuvants of Penicillin.

C/o., Kanyakaparameshwari Rice Mill,
Suriapet, N.S. Ry.

A Case of Kala Azar

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PATIENT named Sabira Begum, aged 18 years, unmarried, resident of Fyzabad since birth, came to the Centre, with the following *complaints*:–

(1) Irregular high fever—ranging from 102° to 106°F.
(2) Marked sweating during the fever and at night.
(3) Loss of appetite, tendency to nausea on the sight of food.
(4) Palpitation of heart.
(5) Acute constipation.

Past history.—She started having temperature since October 1945, the Temp. being regular in onset and ranging very high, say 102° to 106°F. The temperature persisted for a few days and went off, which according to the patient was due to different treatments which she had for her trouble. The patient was kept on Quinine with little relief but later on she was free of temperature after one and a half month. After three months she again had the same type of temperature and was kept on Dr. BERMAN'S medicine

though with no relief, but later on she improved on Juri tab. medicine (some indigenous drug). Similarly she had fever in April '46, then in Sept. '46 and also in March 1947. All the time the attending physicians treated the case for malaria though with disappointment, and the fever came down of its own accord, and naturally it was difficult to say which medicine did good. During the fever she had terrible body ache, uneasiness, loss of sleep at night, marked perspiration, extreme exhaustion and marked disliking for foods, so much so she vomited fluids as well. She was kept on anti-typhoid and anti-malarial lines, but in the end she was diagnosed for tuberculosis, and the case was referred to me as a case of tuberculosis.

Physical examination.—On physical examination, the patient looked very ill, exhausted, anxious and anæmic. Wasting was apparent. There were fine rales in her lungs and pulse was 140 per minute. Spleen was soft and three fingers enlarged. Liver was palpable and tender. Abdominal palpation revealed some tenderness on pressure. In the absence of any clinical examination, one could suspect many possibilities. Consequently the patient was X-rayed and the report gave no evidence of tuberculosis.

The differential blood count was as under :

Polys. 33%, Lymphos. 65%, Monos 2%, Eosino. nil. Total W. B. C. count was 2600 per ccm. Slide was—ve for malaria.

In view of the leucopænia of marked nature I got the Napier's Aldehyde test done, and it was ±.

In view of the foregoing, though the large monos were not increased above average and Aldehyde test was doubtful, I decided to keep the patient on anti-kala azar treatment.

The patient was given Urea Stibamine injections, starting from ·05 gm. and after three injections the temperature dropped to normal. The doses were increased gradually according to the condition of the patient.

The patient showed definite improvement with the treatment. She became free of temperature. The blood picture regained partly to normal within four weeks. Although the patient showed another rise after ten days which was due to an attack of flue with diarrhœa, it disappeared and since then the patient is free from temperature and is showing steady improvement in every respect.

Conclusions.—It is not uncommon to see patients with enlarged spleen and with more or less liver enlargement, in certain cases with œdema of feet and slight pigmentation. Such cases do not respond well to anti-malarial therapy. In ordinary routine these patients are treated for chronic malaria and tuberculosis, and are forwarded to the physician in disappointment, when other complications manifest. From a careful observation it may be pointed out that it is not uncommon to see cases of kala-azar in this part of U.P., specially from Baheri, District Bareilly. If the incidence of kala-azar too is borne in mind, a routine clinical examination (Napiers' test with blood count) will clear the diagnosis.

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"A Prince Among Men"

THE incredible, the inconceivable, the imponderable has happened. The purest, the most elevating, the most inspiring man of our age has fallen a victim to a maniac's anger. It is a sad commentary on the state of our present civilisation. It shows that we have not imporved since the days of SOCRATES who had to drink hemlock, or JESUS who was put on the cross. The life of even a saint has become no longer safe in our times, as the direct result of the two world wars and the spread of totalitarianism which has led to a steady bereft ing from human life of the sanctity which our creed has always placed upon it. No amount of penance practised by our countrymen, or by all the peoples of the world who recognise his greatness, can atone for the dastardly outrage on the passionate lover of our country, nay on the passionate lover of humanity. His death is a world disaster, an irreparable blow to the cause of international peace and harmony, especially at the present time when the world is riven by strife.

In the words of PANDIT JAWAHARLAL NEHRU, the light of our lives, nay the light of the lives of the peoples of the world, has gone out. It will do no good hysterically to tear our hairs or to beat our breasts, or to tear through the vocabulary of anguish and in despair cry out that all is lost. It will not amount to a fair appreciation of the man whom we loved, whom we adored. It is only the physical light that was shining before us that is gone. The light that GANDHIJI illumined in our hearts, will still remain, for it represents the living truth, the eternal truth, reminding us of the right path, teaching the world how to get rid of wars and drawing us and the world from error, from taking the wrong course.

We have got accustomed to look to GANDHIJI not only in times of distress but also at all times for advice and guidance that the disappearance of his mortal frame appears for the moment

to have stunned us all. We ought not to give ourselves up to a feeling of despair. That would be belying the truth of the valuable lessons he has taught us all these years. Let us all give up totalitarianism, inherent or unfortunately acquired by treading the path others have trodden; let us hold together, forgetting all our petty squabbles, difficulties and troubles; let us dedicate ourselves to the truth and the cause for which this great and noble countryman of ours lived and for which he laid down his life And that and that alone is the best way to perpetuate the memory of the prince among men, the prince among patriots and the prince among the servants of humanity. *May his soul rest in peace!*

First Things First

THE executive of the Tuberculosis Association of India deserve to be congratulated on their wise decision to hold their periodical conferences in different parts of the country. This would help to focus public attention on this fell disease which is slowly and steadily eating into the vitals of our society to-day. The Conference that was held last month in Madras was noteworthy for the outspoken speeches made by H. E. the Governor of Madras and the Hon'ble the Minister for Public Health on the subject. Who could have expected some years back the Governor of a Province to say that while the country abounded in resources, and the innate ability of the people was enormous, it was terrible to go round the Province and see emaciated men who have not the energy to do work? It would serve no useful purpose by going into the causes which are responsible for this state of things, or by trying to fasten the blame on those who have been responsible for bringing it about. The political status of the country has changed overnight, and with it also the outlook of the administrators. It is no mean gain, and the wisest thing to do is to cash it for the betterment of the condition of the people.

How to bring about that betterment, how to effect an improvement in the situation, is the poblem that should engage our earnest and thoughtful attention. Col. S. L. BHATIA, Surgeon-General with the Government of Madras, welcoming the delegates to the Conference, stated that there were about 500,000 deaths annually in the country from tuberculosis, and about 2,500,000 active cases of the disease. So far as the figures of deaths are concerned, the Surgeon-General must have spoken from the statistics available. But it is common knowledge that the statistics are for the most part unreliable, since it is not possible to record the actual cause of death as in many cases it would not or could not have been diagnosed. As for active cases, he must be referring only to patent ones, as no statistics are available of latent cases. Even so the figures given are staggering, and no Government worth the name can simply look on while many precious lives are being slowly and steadily dragged on to the grave to the greatest economic loss of the country.

The Hon'ble the Minister was perfectly right when he said that no scheme for the control of tuberculosis can be successful unless it combines prevention with treatment. Mere emphasis on treatment alone will certainly not

solve the problem. We must go to the root of it, the root causes which are responsible for the disease, and take steps to remove them. It is a notorious fact that the extreme poverty and the miserably low standard of living prevailing among a vast number of people of this country are the root causes of the disease. When people who live in ill-ventilated and ill-lighted houses lose their power of resistance by ill-nourishment, the germs of this fell disease get a hold on them, and slowly and steadily play their part with the result that not only the lives of those people affected but also of those who live close to them, breathing the polluted air laden with the disease germs and allowing the disease germs in the expectorations of the diseased persons to enter their bodies, are endangered. It is the malnutrition that has brought about the loss of energy in people to do work. No wonder India which was at one time considered the granary of the East has now to go to foreign countries abegging.

How then to tackle the menace of tuberculosis? The battle has to be fought on many fronts. First and foremost is the problem of providing sufficient food to the people. Even if it is not possible, as H. E desires, to enable every man to eat what he needs, something must be done and that too quickly, to help people to get at least their minimum requirements of food. The present ration is wholly insufficient to help them keep fit. The quality of the food supplied is, in many places, very bad, and the quantity is wholly inadequate, when we take into account the loss inevitable in cleaning the food-stuff supplied to make it fit for consumption. The position in regard to children under twelve who are to be the future citizens of the country is really worse. They have practically to live on a 3 oz. ration a day. Can anybody say that it is sufficient to enable them to grow in the normal way? Therefore effective steps should be taken to enable each man, woman and child, to get an adequate, if not a balanced, diet. Next in importance comes the question of housing. Unless vigorous steps are taken to remedy the present wholly unsatisfactory position, there can be no improvement. And thirdly, a mass diagnosis is called for to find out who all are afflicted with this fell disease. In many advanced countries in the West, X-ray examination on a mass scale is made to find this out. It has been productive of the greatest good, the afflicted being found out and segregated from the rest for treatment. This, of course, would involve heavy expenditure, and His Excellency questions the wisdom of adopting this plan of action. We are not those who want to blindly imitate others. But something has got to be done, some steps have got to be taken, to carry on a mass diagnosis by some method or other. Unless this is done and effective steps taken to segregate the latent and the patent cases and give them effective treatment, all other measures adopted to improve the standard of living of the people and their housing accommodation would be of no avail. When we start such a survey we would find how grossly inadequate are the number of beds now available. True it is that in many countries philanthropists have come forward in large numbers to share the burden with the Government, but it is the elementary responsibility of the State to provide for the health and well-being of the people. Only when they come forward to discharge this responsibility, can they expect the public to come forward to share the burden with them. Tuberculosis being public enemy No. 1, insidious in its origin and fatal in its result unless properly cared for, it is the first and primary duty of the State to take steps to eradicate it. In England an improved standard of living and hygiene, better nutrition with the segregation of infectious cases and the cessation of indiscriminate expectoration

have been mainly responsible for bringing out a decline in the incidence of tuberculosis, and there is no reason why similar measures would not prove equally effective in India. These are the first things to do and we request the Government to take them up first.

The Four-Fold Programme

THE public would have read with a sigh of relief the speech delivered by DR. JIVRAJ N. MEHTA, Director-General of the Medical Services in India, at the College of Physicians and Surgeons in Bombay last month, that in spite of the very difficult situation that has been created for the Government, steps would have to be taken to bring into force necessary measures to meet the conditions, brought to the notice of the country by the Bhore Committee. Our readers would remember that that Committee had recommended a short term and a long term plan at a cost of about a thousand crores of rupees to improve public health and spread medical relief all over the land. The amount is not large, considering the leeway that has to be made to place India on the map along with other civilised nations in the matter of medical relief. And while Conferences were being held and plans were being drawn up to give effect to the recommendations of the Committee, widespread murder, arson and loot started on an unprecedented scale in many parts of India, creating many new problems of the greatest magnitude, for tackling which huge sums had to be spent and have yet to be spent. This must be responsible for the Director-General's earlier statement that for at least two years to come the Government would not be in a position to find the funds required to take on hand for execution the plans recommended by the Committee. But certainly second thoughts should have convinced him that the matter could not brook any delay, and while it might not be possible to give effect to the recommendations of the Committee in full, something at least should be done to give relief to the people. From this point of view, he has placed before the country a four-fold health programme: (1) Training of medical and ancillary personnel: (2) expansion of existing health services; (3) promotion of medical research; and (4) education of the people to preserve their own health through the practice of personal and communal hygiene.

Taking up the first, the Bhore Committee has recommended that a large number of colleges should be established all over the country with a view to make available for the service of the people a large number of qualified medical practitioners. As we have pointed out on more than one occasion previously, medical graduates cannot be manufactured overnight. Students have to undergo a long course of training to equip themselves for the onerous and responsible task they will be asked to undertake. While more medical colleges are necessary, the required number of colleges cannot be established simultaneously or within a short period. And the immediate needs are great that the country cannot afford to wait till everything can be arranged in the usual routine manner. Therefore something must be done, and that too without delay, if the position is not to deteriorate further. Taking all these aspects into consideration DR. MEHTA has suggested the introduction of the shift system in the colleges with a view to enable more students to get themselves

admitted and get the instruction. The shift system is not a new one, to create any doubts in the minds of the readers. It has been brought into force in many of the Arts Colleges in the country to meet the growing demand for higher education. Recently in our own Province this system has been introduced in some of the High Schools also and the scheme is likely to be extended to many other schools from the coming academic year. But between the Colleges for Humanities and the Medical Colleges there is one important difference, and that is this. To the students of the medical colleges, provision has to be made for clinical instruction, and this certainly is very important. Medical colleges have generally been established in only important centres where there are hospitals other than those attached to the medical college for clinical instruction. By making use of those hospitals for clinical instruction the problem can easily be solved. DR. MEHTA has given one other suggestion in regard to the personnel which requires serious consideration. It is not a fully qualified medical man that is required to carry out preventive inoculation, sterilisation of water supplies, elimination of flies, mosquitoes, insect pests and the like. While a certain amount of supervision by a duly qualified medical man is necessary, these jobs can safely be entrusted to non-medical workers by giving them training for a short period in these subjects. If this plan is adopted we will have in a short time a large number of men to carry out these measures and at the same time relieve many qualified medical men who are now engaged in these activities, for other important service. We appeal to the Provincial and State Governments to give these suggestions the consideration they deserve and give effect to them early in the interests of the people.

To the integration of curative and preventive measures DR. MEHTA attaches considerable importance, and he believes that only by coalescing the Public Health and Medical Departments in the States and in the Provinces into a single organisation, the fullest possible measure of co-operation between the two branches of health administration can be secured. There is considerable force in this suggestion. But at the same time we have to take into consideration the fact that there is a difference of opinion in the matter between the Provincial Governments. Those who hold the view that the *status quo* should continue, base their opposition to the proposal on the ground that such an amalgamation instead of helping advance the cause we all have at heart, might hinder it. But at the same time, it must be recognised that the two fields of activity are interdependent, and that without the full and active co-operation of both sides public interest would suffer. It therefore goes without saying that co-ordination of the activities of these two departments working for the same purpose should be brought about. And the coalescing of these two departments is the best means of bringing about that co-ordination and active co-operation. Conditions have changed in the country; the needs have increased many-fold. We therefore trust that the matter will be considered afresh and a satisfactory arrangement arrived at.

Huge expenditure on brick and mortar has been the bane of the alien administration all these years. It is the strict adherence to this requirement which has stood in the way of many important plans being given effect to. If the establishment of a hospital in a particular place is considered necessary and important, the first point that is to be considered is the amount that would be required to construct the necessary buildings to house it. It is always a fairly big sum and the exchequer in nine cases out of ten is unable

to find the money required, with the result that the idea has to be kept in abeyance for long, the people continuing to suffer. Such a thing might have been possible so long as the administration was in alien hands and they were not responsible to the people. The position has changed now; power has been fully and completely transferred to the hands of the representatives of the people, and the people are always on the alert to see if their representatives discharge their duties properly and efficiently. They are not prepared to accept excuses that sufficient money is not available, and so on and so forth. They want the Government to serve them and serve them well too. It cannot be said that unless a building is constructed for the hospital at a cost of some lakhs or some thousands, it would not be possible to give medical relief. This aspect of the matter should have impressed itself in the minds of DR. MEHTA that he has felt it necessary to come forward with the suggestion that except the operation theatre and the like which require to be properly constructed, the remaining portions of the hospital can safely be housed under roofs put up over mud walls temporarily to serve the immediate needs of the situation. The suggestion, if accepted and acted upon, would enable the government to establish hospitals and dispensaries in many places and thereby spread medical relief to places which are now badly neglected. DR. MEHTA's another suggestion that mobile medical units comprising of an expert physician, a surgeon, an ophthalmologist, a gynæcologist and obstetrician, an aural surgeon and a clinical pathologist for every unit of two districts in the beginning, to be restricted to one in course of time as funds permit, to bring expert medical relief near the doors of the rural population deserves favourable consideration at the hands of Provincial Governments and States if the sympathy they profess for the rural folk is real and sincere.

The fourth and the last suggestion of DR. MEHTA relating to the education of the people to preserve their own health through the practice of personal and communal hygiene deserves to be emphasised in view of its great importance. We have many times previously pointed out that the film and the radio can be used for the purpose. But these can touch only the fringe of the problem. There are no radio facilities in many villages; there is very little possibility of cinema shows in many villages. Therefore some additional and effective measures have also to be adopted to produce results. With the establishment of independence in the country and the realisation on the part of the authorities of their responsibility to provide free and compulsory elementary education to all children of school-going age, the grafting of health as a subject in the curriculum of studies not only in elementary schools, but also in high schools and colleges, will be productive of lasting results. They are the future citizens of the country, and they will not only become health-minded but will also spread the knowledge they have gained to others, and in this way the whole population can be made health-minded, making it unnecessary to spend large sums on preventive as well as curative sides. This is the suggestion of DR. MEHTA and though it is neither new or novel, coming as it does from him, is bound to receive the active consideration of the Governments and the Universities in the land.

If our health propaganda is to be productive of results it should lay emphasis, as DR. MEHTA has observed, not only on disease and on methods of dealing with it but should also concern itself with the promotion of positive health. With the prospect of the implementation at an early date

of the recommendations of the Bhore Committee in full, not hopeful in view of existing conditions, it is the bounden duty of the Government to adopt the palliative measures recommended by DR. MEHTA without delay, and we appeal to them to come forward to give effect to them early. Something is better than nothing and the something DR. MEHTA has recommended is really substantial and capable of yielding results.

Rural Medical Practitioners

WHEN the subsidised rural medical relief scheme was inaugurated by the late The RAJA OF PANAGAL in the early twenties, we pointed out that the subsidy proposed to be given was not sufficiently attractive to induce medical practitioners to settle in rural areas which badly needed medical help. But the Government continued the same parsimonious policy for far too long with the result that practitioners were not available to man many dispensaries and therefore many had to be closed down, with what result we need not describe. Recently the subsidy has been increased to a certain extent but the conditions being what they are at present, and the value of the rupee being what it is to-day, the present subsidy is comparatively much lower in value than the allowances paid previously. It is therefore no good harping *ad nauseum* that the subsidy to the rural medical practitioners has been increased.

We are glad to note that the same view has been given expression to by DR. JIVRAJ N. MEHTA, Director-General of Indian Medical Services and the Secretary to the Government of India in the Health Department, in the course of the address he delivered at the Madras Medical College under the auspices of the Provincial Medical Students' Association. His observations are significant and require to be noted and inwardly digested by those in power. "I plead guilty to the charge", he said, "of having recommended to the medical practitioners that they should settle down in villages." This clearly shows how much he feels wounded at the manner in which Provincial Governments have treated members of the medical profession who responded to his clarion call and volunteered for service in rural areas. He has not confined his observation merely to pleading guilty to the charge, but hasgone further and stated what the minimum the Government should do should be. "The subsidy must be a living subsidy and not a paltry sum," he said. He suggested to the ministers here and to the ministers in other places that if they want to encourage rural medical relief, they must make it worth the while of the medical men to settle down in villages, and the minimum he recommended is a salary of Rs. 200/- a month with the right of private practice. It is easy to ask people to go to the village, but it is not so easy to practise it. Those who have got themselves accustomed to town life and all the amenities available there during the long course of their education can only, at a sacrifice, agree to take to village life. And to induce them to sacrifice the amenities and other conveniences of town life, the remuneration they are offered must be worthwhile and sufficient to keep their body and soul together in a fit condition. It is true that settling in villages will afford an opportunity to medical men to serve the people, but it is hard and impracticable to expect people to give greater importance to service than to keeping them fit and above want

to render that service. We are glad that one in the position of DR. JIVARAJ N. MEHTA has come forward openly to champion the cause of the rural practitioners and we trust that the Governments will, if they are really sincere in extending medical relief to rural areas, accept the recommendation of DR. MEHTA and make service in villages worth the while of medical practitioners.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Gastroscopic findings in chronic duodenal ulcer.—Edward J. Lefeber, University of Texas Medical Branch, Galveston, Texas. *Texas Rep. Biol. and Med.* 4:324-37, 1946.

A gastroscopic study of 46 patients with proved chronic duodenal ulcer without gastric retention was undertaken to determine the clinical significance of an associated chronic gastritis. The literature is reviewed. The patients are classified as to the clinical activity of the ulcer at the time of gastroscopy. The incidence of typical and atypical symptoms, the response to a routine Sippy regimen, and the frequency of relapse are analysed. In a majority of the patients gastroscopy was performed within two weeks after the institution of therapy.

Chronic gastritis was observed in 26 of the 46 patients or 56·6 per cent. Hypertrophic gastritis was the most frequent type. Antral gastritis was found in only 3 patients. A characteristic clinical syndrome could not be established by which an associated gastritis could be diagnosed without gastroscopic examination. Symptoms suggestive of a primary gastritis were found no more frequently in patients with gastritis than in those without it. The average duration of symptoms in 19 patients (average age, 46 years) with active duodenal ulcer and an associated gastritis was 9·4 years, while for 18 patients with no evidence of gastritis and the same average age, it was 6·8 years. No correlation was demonstrated between the symptoms and the severity of the gastritis observed. Likewise, follow-up gastroscopic examinations in 7 patients demonstrated that very little change occurred in the mucosal picture in spite of therapeutic measures directed toward the control of ulcer symptoms and that *oftentimes* the associated gastritis was symptomless. In none of this small group did the gastritis appear to progress in severity; in few, slight improvement was observed.

The immediate response to therapy appeared to be little affected by the presence or absence of chronic gastritis. The incidence of relapse of ulcer symptoms, in 35 patients followed one to five years after gastroscopy, tended to be slightly higher in the gastritis group. Factors other than non-adherence to diet were responsible for relapse in 3 or 15·0 per cent of 20 patients with normal stomachs and in 7 or 26·9 per cent of 26 patients with an associated chronic gastritis. Relapse due to non-adherence to a prescribed diet occurred in 5 or 25·0 per cent of the normal group and in 6 or 23·0 per cent of the gastritis group.

Chronic gastritis is frequently associated with chronic duodenal ulcer. Thus, in a series of 531 chronic duodenal ulcer cases with reports of gastroscopic findings collected from literature, the incidence of chronic gastritis was 62·5 per cent. This is a much higher incidence than is reported from several series of gastroscopic studies among the general population. In most patients with chronic duodenal ulcer, the presence of chronic gastritis is without specific symptoms and the diagnosis can be made only by gastroscopy. The impression is gained that certain of these patients with gastritis are more refractory to therapeutic control in that relapse is more prone to occur. This view, however, must be tempered by the observation that relapse of symptoms due to non-adherence to dietary measures is no more frequent in the gastritis than it is in the non-gastritis patients of this series. An associated chronic gastritis in some individual cases will demand, then, a more strict regimen of therapy than is given for the usual ulcer patient. The demonstration of chronic gastritis in most patients with chronic duodenal ulcer has little clinical significance.—*Quarterly Review of Medicine.*

Observations on the sprue syndrome.—S. J. Sloane, Montreal, Que., Canada. *Canada M. A. J.* 55:448-50, November 1946.

Sprue is a disease characterized by steatorrhea, wasting and anemia. Its essential nature has been elucidated by the work of Gee (1888), Rhoads, Castle *et al.* (1935), Hurst (1942), Hanes (1944) and Moore, Vilter, Minnich and Spies (1944).

The work of Rhoads, Castle *et al* (1934) brought the disease into the same general class as pernicious anemia, with comparable gastro-intestinal, hematologic, and neurologic features. They pointed out that the etiology may be nutritional (lack of "extrinsic factor" in diet), or constitutional (inability to synthesize intrinsic factor, or to absorb erythrocyte-maturation factor from the small intestine).

Since many nutritional anemias have hematologic findings similar to those of pernicious anemia, interest centres on the basic cause of the defect in small intestinal absorption. Hurst placed this defect in the paralysis of the muscularis mucosæ of the small bowel and its extensions into the intestinal villi; but his chief contribution was that of classifying the whole group of sprue-like diseases into the common entity, which he called "the Sprue Syndrome."

The diagnostic criteria of this syndrome are: steatorrhea; weight loss; flat glucose tolerance curve; macrocytic anemia; hypochlorhydria and achlorhydria; radiologic abnormalities: (a) loss of normal "herringbone" appearance of small intestinal mucosa (Moulage Sign); (b) separation of barium into bag-like or sausage-shaped clumps; excess of unsplit fat in stools.

It is obvious that conditions in which the lymphatic drainage from the small bowel is interfered with, *e.g.*, mesenteric tuberculosis, may finally result in a state indistinguishable from the sprue syndrome. It is less widely recognised, the authors believe, that extensive surgical procedures on the small bowel, particularly those involving the resection or side-tracking of great lengths of small intestine, may occasionally result in a comparable syndrome.

The writers suggest the terms "Primary Sprue Syndrome" for the constitutional cases, and "Secondary Sprue Syndrome" for the nutritional, postinfectional and postoperative cases.

The treatment in all cases involves: (a) dietary measures—fat-free, high CHO and protein feedings; (b) liver extract or folic acid; (c) vitamin therapy, particularly the fat soluble group.

A case report is submitted in which a diagnosis of sprue syndrome was made clinically and corroborated by laboratory methods, after six years of chronic diarrhea and wasting. The patient had had two laparotomies prior to admission to hospital, in one of which an extensive side tracking operation had been carried out. Mesenteric tuberculosis had been suspected, but the suspicion had never been substantiated. The patient responded well to the methods of treatment outlined.

A second case is quoted in which the sprue syndrome with chronic diarrhea and a typical macrocytic anemia, followed extensive resection of small intestine which had been carried out for gangrene following herniation through a stercoral perforation. The patient responded well to liver therapy.

The relation of sprue syndrome to extensive surgical procedures on the small intestine is stressed.—*Quarterly Review of Medicine.*

Treatment of the anginal syndrome with thiouracil.—Twenty-nine patients, twenty-four men and five women, with angina pectoris, were studied at the cardiac clinics of the Jersey City Medical Centre and the Greenville Hospital. This makes a total of thirty-seven patients thus far treated with thiouracil. The ages varied from forty-two to sixty-nine years. All had had angina pectoris for a period of time, varying from eight months to nine years. Thirteen patients had a history of an old coronary occlusion. Each patient had a complete history, physical examination, blood count, and basal metabolism test before treatment was begun. In some patients blood cholesterol determinations were made before and during treatment. All of them were observed from one to two months before treatment. Blood counts were made once or twice weekly for the first two months and later were made at longer intervals.

The patients were divided into two groups. In one (Group A) studied in the early period of this investigation, twenty patients received an initial daily dose of 0·6 gm. of thiouracil by mouth until clinical improvement was noted. This dose was given for two to three weeks, after which the patients were placed on a daily maintenance dose of 0·1 to 0·2 gm. for a period varying from three to seven months. In the second group (Group B), the initial daily dose was 0·4 gm. followed by a maintenance dose of .0·1 to 0.2 gm. Thiouracil was found to be beneficial in twenty-five of thirty-seven patients (67 per cent) with the anginal syndrome. Definite improvement was obtained in fourteen of twenty patients (70 per cent) receiving an initial daily dose of 0·6 gm. of thiouracil. The onset of improvement began, on the average, after three weeks of treatment. Eleven of seventeen patients (64 per cent) improved with an initial daily dose of 0·4 gm. of thiouracil. The onset of improvement averaged 3·9 weeks. Five patients developed fever in the first ten days of treatment. Three patients developed neutropenia in the fourth month of treatment. It was concluded that thiouracil is an effective drug in the treatment of angina pectoris. The smaller dose (0·4 gm.) is almost as effective as the larger dose (0·6 gm.). Toxic reactions may occur with both. (Ben-Asher, Solomon: "Further Observations on the Treatment of the Anginal Syndrome with Thiouracil." *Am. Heart J.*, 33:490, April, 1947.)—*Medical World.*

Difficulties in the diagnosis and treatment of pinworm infection.—W. N. Sisk, *North Carolina M.J.*, June, 1946.—The author discusses the frequency and seriousness of oxyuriasis and the difficulties of diagnosis, and introduces two new drugs, one of which shows promise of being effective in treatment.

The disease is most serious in children under seven years of age. Most frequent symptoms are restless sleep, anorexia, particularly at breakfast time, nervousness, pruritus ani at night, slight pallor, circles under the eyes, and some anæmia. Enormous numbers of eggs were deposited by the female worm in the perianal skin, and these become spread all around the house, even in the mouldings around the ceilings. The author recommends the cellophane swab for

collecting specimens, but finds that with light infections numerous swabs may be negative and diagnosis difficult. (The swabs are scraped around the perianal region). Examination of stools is unreliable for diagnosis.

The chief drawback to treatment with genital violet medicinal is the frequency of nausea. This can be minimized by taking the tablets 30 minutes before meals. Two or three weeks of treatment is usually required for complete cure. Phenothiazine is very effective, but it is too toxic for routine use in large groups. Sulphaguanidine, sulphasuxidine, and sulphathalidine were not effective. Ferrous sulphate was of no benefit. Two new drugs were tried. Butolan was used in a few cases, with some improvement and no toxic reactions, but the cure rate was low with the doses given. "Lubisan was used in capsules containing 0.2 gm. For adults six capsules were given each morning on an empty stomach, and no breakfast was eaten for three hours. The same dose was given on three successive days, and after four days' rest, was repeated for three more days. Smaller doses were given for children under 12 years of age." Thirty-seven of 50 patients treated were considered cured, as high a cure rate as with any other drug used, and there were no toxic symptoms. The author suggests the trial of larger doses of Lubisan, and longer courses of treatment. He emphasizes that all members of the household must be treated at one time if a permanent cure in the individual patient is to be expected. The case histories of two families are presented. Eight references.—*G.P.*

The effect of salicylates on acute rheumatic fever.—H. Warren, C. S. Higley and F. S. Combs, *Amer. Heart Jnl.*, Sept. 1946.—This is a study of 186 cases of rheumatic fever observed over a period of three years. Treatment was given by salicylate following three plans. In the first, small doses of salicylate (2 to 7 g.) were given to relieve symptoms; in the second, large doses of salicylate (10 to 16 g.) were given during the whole period of rheumatic activity, as judged by the sedimentation rate; lastly, a small group received intravenous salicylate (10 g. salicylate in a litre of normal saline) for one week, and then large oral doses (10 to 16 g. daily).

If the sedimentation rate is accepted as a criterion of rheumatic activity, large doses of salicylate were no more effective than small doses in reducing it. It was found that large oral doses controlled fever more rapidly than smaller doses or intravenous medication. Large doses of the drug did not prevent the development of valvular lesions, or the progress of pre-existing cardiac damage. The authors found that pericarditis was more rapidly controlled by large-dose therapy. Large doses or intravenous therapy were no more efficacious than small doses in restoring a prolonged P.R interval in the electrocardiogram to normal limits.

When large doses are given the signs of toxicity must be thoroughly understood and promptly recognized. Tinnitus and slight deafness are constant with doses of 10 g. daily. The earliest warning sign of toxicity is hyperpnoea, and, if this is disregarded, tetany, maniacal delirium, and loss of consciousness may occur. These symptoms promptly subside with cessation of salicylate and administration of sodium bicarbonate. It was found that 7 to 8 g. of sodium salicylate daily in divided doses maintained a blood level of 35 to 50 mg. per 100 ml. in young adults. No bicarbonate was given with these doses, and toxic reactions rarely occurred. Intravenous therapy offered no advantages over oral administration of salicylate. Sodium salicylate does not effect a cure, and so far there is nothing in drug therapy which will obviate the need for prolonged rest and reduction of physical activity, which remain the most important methods of treatment of acute rheumatic fever.—*G.P.*

Caffeine and peptic ulcer (J.A. Roth and A.C. Ivy in *Gastroenterology*, Nov., 1946) — Recently attention has been directed to the possibility that caffeine might play a role in the pathogenesis of gastroduodenal ulcers. All recent authors are in agreement upon the following observations: (a) Peptic ulcers may be produced experimentally in cats or guinea pigs in a relatively short period of time by the prolonged and continuous administration of caffeine alkaloid in beeswax; (b) caffeine is a moderately potent stimulant of gastric secretion when administered orally, intramuscularly or intravenously to can or cat; and (c) a majority of patients with active gastroduodenal ulcer disease manifest a prolonged and sustained increase in the total output of free hydrochloric acid in response to the caffeine test meal.

It is reasonable to conclude on the basis of recent experimental evidence that the daily consumption of relatively large quantities of caffeine—containing beverages over a long period of time may contribute to the pathogenesis of peptic ulcer in the individual with the commonly associated psychosomatic substrate. In view of the prolonged gastric secretory response in ulcer patients, caffeine may aggravate an ulcer already existing and may render the therapeutic management of the condition more difficult.—*G.P.*

Modification of the Faust method in the detection of cysts and ova—Bahij J. Baroody, Timmonsville, S.C. *J. Lab. & Clin. Med.* 31:1373-74, December 1946.

A modification of the Faust method for the detection of cysts and ova is described wherein the yield of cysts and ova is definitely increased over the routinely performed zinc sulfate technic: (1) Thoroughly emulsify about 10 Gm. feces in warm water, strain through wet gauze into a 50 c.c. centrifuge tube (teated bottom) and centrifuge one minute at 2500 r.p.m. Supernatant fluid is decanted; (2) repeat washings in warm water and centrifuge until supernatant is clear; (3) after last decanting add about 5 c.c. water, agitate tube and pour contents quickly into a 15 c.c. tube. Centrifuge and decant; (4) add 33 per cent zinc sulfate solution, mix thoroughly and add more solution until tube is nearly filled; centrifuge one minute at 2500 r.p.m.; (5) place several loopfulls of fluid from surface layer on slide, add 1 drop of D'Antoni's Iodide, apply a coverslip and examine for cysts and ova.

Warm water is used to remove bile pigments and fecal debris (scum). A large 50 c.c. tube is essential, as it decreases number of washings. Ten Gm. feces are utilized instead of the conventional 1 Gm. sample. Theoretically and practically this modification has proved extremely useful, especially when light infestations are involved.—*Quarterly Review of Medicine.*

Brucellosis: Advances in diagnosis and treatment.—Harold J. Harris, New York, N.Y., *J. A. M. A.* 131:1485-93, Aug. 31, 1946

Persistent or intermittent high fever, sweating, a palpable spleen, fatigue, muscle or joint pains are suggestive evidence of brucellosis. Many cases, however, reveal themselves merely as a chronic illness, afebrile or attended by low-grade fever. Specific laboratory studies in suspected cases are needed to confirm the diagnosis. The differentiation between brucellosis and psychoneurosis may be extremely difficult, especially when they coexist.

Next to positive cultures, the positive agglutination test is the most reliable evidence of active infection. A negative agglutination test, on the other hand, does not exclude it.

The intradermal test should be deferred until all information obtainable from the agglutination test has been secured. Otherwise misleading agglutinins and even opsonins may be stimulated. A case is cited in which the agglutination reaction did not become positive until after six months of illness.

A titer of 1:80 or higher is deemed adequate evidence of acute infection in the presence of presumptive symptoms. Occasionally other infections may give rise to crossagglutination reactions. Other febrile illness may evoke a rise in titer in old brucellosis infections. Chronic cases may have no agglutinins or only a low titer.

Generally, a positive skin test has the same relative significance as a positive tuberculin test. The heat killed Brucella abortus vaccine seems preferable as an antigen to the mixed strains or the filtrate (brucellergin). The material is injected intradermally and the reaction is read usually in four days, though a delayed reaction may not appear until seven days.

When carefully done with virulent cultures of smooth strain, the opsonocytophagic test is of inestimable value. A positive skin test and a high phagocytic index suggest recovery from infection. A negative test indicates only an absence of measurable resistance.

Isolation of this slow-growing and stubborn organism requires special media and many weeks of work. Splenic punctures from patients provide excellent culture material. Guinea pig inoculations may be helpful as an aid in isolating the organism.

Penicillin has proved valueless in treatment. Streptomycin will terminate an attack when there is no localized infection, but a relapse usually follows. Sulfonamides are helpful in controlling the early phase, and occasionally in the chronic stage when joints are involved. Sulfonamides should be given in small doses over a period of weeks following subsidence of the fever, and then gradually stopped as vaccine therapy is initiated.

Brucellin which is a filtrate of the three strains of Brucella has yielded questionable results. Antisera are no longer available. Immune blood has been transfused with reported successful results.

Heat-killed B. abortus vaccine has been the most successful agent in treating the uncomplicated chronic infection. Intramuscular injections are recommended. The vaccine should be sufficiently dilute to avoid more than mild reactions. The standard concentration is 2000 million organisms per cc. Dilutions of this ranging from 1:10 to 1:10,000 are necessary for patients with varying degrees of sensitivity. When desensitization and the phagocytic response are not progressing satisfactorily, the vaccine can be given intravenously. The highest dilution should be used and five doses by this route usually suffice. A high protein, high carbohydrate, high vitamin, low fat diet is recommended.—*Quarterly Review of Medicine.*

SURGERY

Chlorophyll urea ointment in treatment of burns and chronic ulcers.—Healing time of burns was reduced at least 50 per cent in a series of 62 cases treated by the authors with a preparation of chlorophyll 1 per cent. containing 10 per cent. benzocaine and 33·2 per cent. urea in an ointment base. The cases included burns of varying degrees produced by hot metals, chemicals, hot fats, steam and electrical current. With use of this ointment, new epithelial tissue developed and matured almost overnight, with formation of skin that was flexible and smooth. No single case developed secondary infection where the wound was clean at onset of treatment. In several cases of long standing infected at onset of treatment, healing was quick and with minimal or no scar tissue formation. The dramatic results apparently are due in large part to the

epithelial stimulant properties of chlorophyll—M. D. Finkel and A. J. Levine, in "*Industrial Medicine*".—*G.P.*

Penicillin treatment in surgical conditions of the chest.—A. L. D'Abreu, *M. Press*, April 10, 1946.

Certain types of empyema can be cured by repeated aspirations and penicillin instillations. Forty cases are cited in the literature which were completely cured by this method. The contraindications to this method, and indications for operations, are: (1) the presence of a bronchopleural fistula, (2) a large infected effusion associated with total lung collapse, (3) fibrin clot formation, (4) persistent gram-negative infection, and (5) the presence of a lung abscess.

Repeated bacteriologic and radiologic investigations are essential. Aspiration is then followed by injection of 120,000 units of penicillin for large cavities and 60,000 units for smaller ones in 30 c.c. of solution on alternate days, until the fluid is free from organisms on smear and culture. Energetic MacMahon breathing exercises are to be followed. Six to 12 aspirations are usually required. The cases must be selected and attention given to detail.

Penicillin given intrapleurally is of great value in tuberculous pleural effusions, especially in thoracoplasty. Penicillin (25,000 units every three hours) should be given for staphylococcal lung abscess, if sulphonamides and postural drainage do not produce improvement *in two or three days*. If improvement is not apparent in ten days, surgical drainage must be employed. Large cavities should have air and pus removed, and 50,000 units in 3 c.c. of solution should be instilled. Penicillin is also effective in the treatment of pneumonic consolidation and atelectasis. After pneumonectomy or lobectomy in lung carcinoma and bronchiectasis, 50,000 to 100,000 penicillin units may be left in the pleural cavity. Post-operative effusions are then aspirated on alternate days and more penicillin is instilled.—*G.P.*

Present developments in combined anæsthesia.—Ralph T. Knight, M.D., *The Journal of The Michigan Medical Society*.

A good example of effective combined anæsthesia is the simultaneous use of sodium pentothal, curare and nitrous oxide.

Sodium pentothal is probably the best hypnotic we have ever had. The induction of sleep which it presents is an extremely pleasant sensation. The awakening from its effect is equally smooth and pleasant. One wonders whether in these times any patient should be subjected to other means of induction unless he dreads a needle more than a mask and even some measure of delirium. Of course there is still the rectal catheter, but even this may be refused by some. A dose sufficient to block pain pathways and reflex arcs over-depresses the cerebrum and medulla. Muscle tonus is not reduced without still further central depression. Severe stimuli applied to the skin or other sensitive areas cause even violent reflex muscular movement unless a dose overwhelming to the brain is administered. A sleep too long and depressing then follows.

Curare, in the form of intocostrin, by Squibb, produces muscular relaxation by its action upon the neuromuscular junction. This is its efficient effect. In larger doses it may also have some analgesic action, and in very large doses it produces unconsciousness. These effects should not be sought. The intercostal muscles and the abdominal muscles are relaxed at the same time, just as they are by large doses of the potent general anæsthetics, and the diaphragm is the last muscle to succumb. The use of intocostrin with sodium pentothal prevents reflex motion, assures quietness, and in increasing dose develops loss of muscle tone while accompanied by only a hypnotic dose of sodium pentothal.

Inasmuch as no effective analgesic is represented by these two, one seeks an addition of an analgesic drug which will produce little central depression. Procaine has been used for years intravenously to combat peripherally the torment of severe pruritus. More recently it has been used successfully to relieve the pain of burns, and very recently it has been used by Allen *et al* for the relief of the pain of childbirth. Procaine can be added to the intocostrin, thus considerably lessening the intensity of afferent impulses. This diminishes still further the dose of sodium pentothal necessary to maintain unconsciousness, and the dose of intocostrin necessary to prevent reflex motion.

After trying various proportions the author has adopted for the present a proportion of 10 units of intocostrin to each 25 mg. of sodium pentothal. And used this for all types of cases, small plastic operations, eye operations, mastoids, laryngectomies, brain surgery, major intrathoracic surgery, cholecystectomies, colectomies and gastrectomies, and have not yet been much tempted to change the proportion. The total doses vary, of course, with the type of surgery, the length of operation and the individual. The dose of pentothal is surprisingly small, a gram seldom lasting less than two and one half or three hours, and often lasting four or five hours. Awakening is almost immediate and is quiet and pleasant.

In the beginning the author used an amount of procaine equal to that of pentothal, and a much smaller amount of intocostrin; after a dozen cases he abandoned the procaine, feeling that it added to the length of sleep. The curare was then increased. The only difficulty he has had was the rather frequent occurrence of hiccups in the upper abdominal cases. This he believes is due to the lack of analgesic action, with resultant reflex contraction of the diaphragm, the only muscle left capable of responding, when upper abdominal

attachments are tugged down. He has, therefore, again added the procaine, but only in proportion of 10 mg. to each 25 mg. of pentothal. More experience will be required, but it seems promising.

The sodium pentothal is injected from one syringe, and the intocostrin, or intocostrin and procaine, from another. Each is injected separately into a small calibre, hard-wall rubber tubing, through separate B-D Gilson mixing adapters, or three-way stopcocks. A constant drip of intravenous solution is kept moving through the tubing to keep the needle open and to separate the contents of the two syringes which tend to precipitate on mixing.

Along with the intravenous use of these agents together, they have always added nitrous oxide and oxygen as soon as the patient is unconscious. The bag is first filled with 33⅓ per cent oxygen and 66⅔ per cent nitrous oxide. Thereafter a flow of 500 c.c. each per minute is maintained with the escape valve opened just sufficiently to keep the bag from distending. This, by oxygen analysis, maintains from 28 per cent to 35 per cent of oxygen.

Nitrous oxide in this percentage is a pretty fair hypnotic and pretty fair analgesic, and reduces to some extent the amount of sodium pentothal and procaine required. With the nitrous oxide and oxygen constantly administered as described, small amounts of the intravenous agents are injected intermittently, in the proportion given above, as required to maintain the desired quietness and relaxation.

A mask or an intratracheal tube with inflated cuff are used as indicated and controlled respiration is used whenever it is thought desirable to increase the respiratory exchange, as at certain times in chest surgery or in abdominal surgery with deep relaxation.—*G.P.*

Seconal as a basal anæsthetic agent in children.—Mary Frances Poe and Mary Karp, in *Current Researches in Anaesthesia and Analgesia*, Aug. 1947. Basal narcosis is especially useful in the management of children undergoing surgical procedures. It spares the child the psychic disturbance attendant upon the trip to the operating room and induction of anæsthesia. It reduces the amount of inhalation anæsthesia as much possible, and it provides a period of post-operative rest and amnesia.

Seconal is rapidly absorbed when given either by mouth or by rectum. Oral administration was employed when feasible. Its rapid action was only slightly retarded when administered by the rectal route, which was used for small children or infants who could not swallow capsules. The pierced capsule was inserted in the manner of a suppository or the powder suspended in 5 c.c. of tap water and injected by rectal catheter. An additional 2-3 c.c. of water was given to assure the patient's receiving the full dose. The buttocks then were taped to prevent expulsion. The drug is also available in the form of a suppository. Maximal analgesia was obtained 30-60 minutes, but the action persisted for several hours. A calculated dose of 0·14-0·15 gr. (9-9·5 mg.) per pound gave the optimum degree of narcosis. It was not advisable to use a total amount greater than 6 gr. (390 mg.) in children six years of age or under. The dose was reduced in patients with anæmia, lethargy or with the decreased vitality. It was planned in all cases to use local infiltration, and the basal anæsthesia was employed to provide a manageable patient. Whenever pentothal sodium or other supplement was anticipated, atropine sulphate was administered subcutaneously as part of the pre-operative medication.

Side effects observed were a rise in pulse rate, some decrease in respiration and a fall in blood pressure. The increase in pulse rate was slight and could easily be attributed to lightness of the anæsthesia state or to the epinephrine in the local solutions (8 drops of 1:1,000 epinephrine were routinely used per 100 c.c. local solution). The respirations were decreased somewhat in amplitude, but no apnoea occurred and the exchange was sufficiently adequate in all cases to prevent symptoms of anoxia. Blood pressure records were kept only on the major surgical procedures. In these cases, there was noted a fall of 10-20 mm. Hg. in the systolic reading, which occurred about 30-45 minutes after the sedative was administered. There was no significant change in pulse pressure. There was no evidence of late depressive symptoms. It has been used in patients with pathology of the central nervous system, cardiovascular system and genitourinary tract without untoward effects. No postoperative complications referable to the premedication occurred.

—*G.P.*

Infection of wounds with gram-negative organisms.—The observations of Florey and his associates were made on 53 battle casualties with 63 lacerated wounds mainly involving compound comminuted fractures of the tibia and on 10 further superficial wounds caused by pressure sores and plastic operations. Since all the patients had received prophylactic injections of penicillin for various periods after wounding and continued to receive prophylactic local applications or intramuscular injections throughout their treatment, the gram-positive organisms commonly considered responsible for major sepsis were of minor significance. Clostridia were not a problem for more than three weeks in most wounds. It had been hoped to compare the state and progress of wounds containing gram negative bacteria with those of wounds in which these organisms were not present; but 51 of the 56 which could not be closed by secondary suture harbored one or more species of gram-negative bacteria from the secondweek after wounding onward. It was therefore impossible to assess effects against a comparable number of controls.

Lysis of surrounding clot, persistence of discharge and consequent interference with the processes of bony and soft tissue repair seem to be the main effect of gram-negative infection. Bacteriologic and clinical effects were observed of the daily local application of different agents in reducing the infection. Streptomycin was most effective in reducing Escherichia coli, Pseudomonas pyocyanea and Proteus both rapidly and permanently in a few wounds. Sulfathiazole was effective in eliminating Escherichia coli and Proteus to a lesser degree. Sulfamezathine had a similar effect on Escherichia coli and Pseudomonas pyocyanea. The presence of Staphylococcus aureus in the wound was almost as effective as the two sulfonamides in reducing the gram-negative population. Neither operation nor enclosure in plaster of paris had any pronounced influence on the infection. Clinical application of these findings showed that deliberate use of the sulfonamides, with penicillin when necessary, or the use of streptomycin, could sterilize persistent sinuses so that they healed rapidly.—*J.A.M.A.*

Cerebral abscess of otitic origin.—Raul Velasco Letelier, Rev. *otorrinolaring* 5:236, Dec. 1945.

In a survey of 9 cases of cerebral abscess, the author found that in every case the abscess was secondary to chronic suppurative otitis media. The organisms isolated were streptococci, staphylococci and pneumococci. The route of infection in 8 of the cases was by continuity; in the ninth it was by the vascular route. There has not been any association, in any of these cases, with thrombosis of a lateral sinus. The symptom complex was varied and often presented problems in diagnosis. The symptoms can be subdivided in relation to the various stages of formation of the abscess. In its incipiency there is localized encephalitis, which may last for a week or more. Here the symptoms and signs are primarily those associated with either a meningeal or a cerebral infection, such as headaches, high fever, rapid pulse, chills, increase in spinal fluid cell count and the presence of leukocytes in the spinal fluid. The headaches are the most persistent finding. The second stage is that of encapsulation of the abscess, which usually takes about three or four weeks. Here the symptoms are quite different, and the author found that vomiting is extremely common but that it is not of the explosive type, as is usually assumed; it is generally preceded by marked nausea. The headaches are of the typical hemicranial type. Mental phenomena are common, such as somnolence, intellectual dullness and marked indifference and inattention to surroundings. These mental disturbances were noted in 55 per cent of his cases. Bradycardia is common but a very late symptom. Papilledema is not especially common, but the author stresses the importance of the examination of the eyegrounds. Once the abscess is fairly well encapsulated the temperature is not of diagnostic significance, for it usually assumes the lower level and is more or less constant throughout. If the temperature is high or assumes bizarre characteristics, one should suspect other complications, such as meningitis or thrombosis of a lateral sinus. However, the author stresses the postoperative importance of the temperature, for if there is an unexpected rise at that time, one should suspect either interference with the drainage of the abscess or the possibility of further extension of the pathologic process. In addition there are other signs of cerebral localization, such as monoplegia, facial paralysis, diplegia and rarely hemiplegia. The nerve reflexes are usually active or even exaggerated. Nystagmus and conjugate deviation of the eyes were seen in only 2 patients.

Lumbar puncture was done routinely on all patients, but the number of cells in the spinal fluid was not of great prognostic significance. The differential diagnosis of thrombophlebitis and cerebral abscess is sometimes difficult.

Velasco Letelier believes that surgical intervention should be done through the mastoidectomy route. If a fistulous tract is found on exposure of the dura, he follows this to the abscess cavity. When it is absent, he does multiple punctures in various directions until he reaches the mass. He emphasizes the importance of securing ample drainage of the abscess, but this must be done only when the abscess is fairly well encapsulated. The sulfonamide drugs and penicillin are of value only postoperatively. Finally, he believes that the neurosurgeon can be of value in those cases in which the fibrotic character of the capsule interferes with normal function of the brain and produces some secondary symptoms, such as epilepsy, vertigo and migraine.—*A.J.D.C.*

Hydronephrosis—The surgical treatment.—*Surgery*, 1946, 20:359.

The author presents a comprehensive review of the accepted methods of treating hydronephrosis. He stresses the fact that the first principle in treatment is diagnosis, which includes not only the proof that the condition is present but a demonstration of its cause, degree and complexity. Obstruction to the urinary flow may be unilateral or bilateral and may be located in the upper or lower portion of the urinary tract. The resulting back pressure effects may be small or large, and may be accompanied by secondary effects elsewhere which add to the degree of renal obstruction independently and thus complicate the therapeutic problem. The aims of treatment is always the preservation of renal tissue with the least risk. Occasionally, non-interference is wisest, but usually there is a choice between doing one or more of several different procedures.

Two distinct types of hydronephrosis are recognized: an insular hydronephrosis, which is an isolated pyelectasis and hydronephrotic atrophy of pure ureteropelvic origin, and a hydronephrosis similar pathologically, but due to obstruction and accompanied by changes below the ureteropelvic junction.

The point of view that any hydronephrosis not completely functionless should be reparied is condemned. The patient gains little from the repair of a kidney which would not be able to maintain renal function in the event of the loss of the opposite kidney. However, if an uninfected hydronephrotic kidney is capable of performing anywhere near one-fourth to one-fifth of total function, and it is believed that after relief of the obstruction the renal parenchyma of the hydronephrotic kidney has reserve potentialities which would permit its renal units to hypertrophy upon stimulation, as would happen when some disaster struck its compensatory mate, repair of the hydronephrotic kidneys is indicated. In cases of bilateral hydronephrosis, repair of the poor side first is the rule because, (1) Post-operative renal insufficiency and the danger of anuria will be less, and (2) an optimal degree of repair of both kidneys will be secured. In the event of a decision to perform bilateral repair, the second operation should not be delayed too long.

In the treatment of hydronephrosis resulting from obstruction below the ureteropelvic junction, removal of the cause of obstruction is the first consideration. Secondary changes resulting from obstruction, such as vesical diverticulum, ureterovesical stenosis, and valve formation from an elongated tortuous hydrometer may necessiate further procedures which include diverticulectomy, ureteral meatotomy, reimplantation of the ureter into the bladder, or complete ureterolysis with partial ureterectomy.—*Surg. Gyne. and Obstr.*

OBSTETRICS and GYNÆCOLOGY

Thrombophlebitis and phlebothrombosis in gynecologic patients: The prophylaxis, recognition, and treatment.—*Joe V. Meigs and Francis M. Ingersoll, Massachusetts General Hospital, Boston. Mass. Am. Obst. & Gynec.* 52: 938-45, December 1946.

Fatal pulmonary embolism is an important problem in the care of gynecologic patients in New England. Bilateral superficial femoral vien interruption is the method advocated and used to prevent this catastrophy on the gynecologic wards of the Massachusetts General Hospital. The general policy is to ligate the veins of any patient who has had a nonfatal pulmonary embolus or a patient who has definite signs of either thrombophlebitis or phlebothrombosis. During the five year period from 1941 to 1945 there were 3,503 major operations, 75 patients had femoral vein interruption, and during that period there were 5 fatal pulmonary emboli; in 4 of these the veins were not interrupted. In a series of male, urologic patients reported by Fletcher Colby the mortality from fatal emboli was reduced by femoral vein ligation from 2·63 per cent to 0·93 per cent.

The signs and symptoms sought, so that thrombophlebitis is diagnosed early, are tenderness of the calf muscles (present in 53 per cent of our 75 patients who had femoral vein interruption), swelling of the calf, pain upon pressure on the instep, and pain upon dorsi flexion of the foot (Homan's sign) positive in 28 per cent of our patients. Chest pain or roentgen-ray evidence of pulmonary infarcts was present in 18·4 per cent of our patients who were operated upon.

Prevention of thrombophlebitis is attempted by placing the bed of post-operative patients on low shock blocks, encouraging active exercises as soon as the patient is conscious and by encouraging early mobilisation.

The method of surgical treatment of thrombophlebitis is the interruption of both femoral veins above the clot. Both veins must be interrupted because the process may be bilateral. The operation is done under local, pentothal, or gas-oxygen-ether. An incision is made from the inguinal ligament downward over the course of the femoral arterial pulsation. The femoral vein is isolated, and the junction of profunda femoris and superficial femoral veins is exposed. The vein is ligated and divided just distal to the entrance of the profunda femoris. If a clot is found it is removed by suction. If the profunda contains a clot the common femoral vein is interrupted (19 per cent of the 75 patients operated upon had clots in their veins at the time of operation).

Members of the hospital staff are in agreement concerning interruption of the femoral veins in patients who have had nonfatal emboli or who have thrombophlebitis. Disagreement exists on the advisability of interruption of veins as prophylactic measure in elderly patients. We advocate interruption in elderly patients with cancer. There has been no immediate mortality from femoral vein interruption. Swelling of the legs after interruption may occur but it disappears in less than six months.—*Quarterly Review of Obst. and Gyn.*

Hydramnios.—Louis Carnac Rivett, London, England. *Am. J. Obst. & Gynec.* 52:890-93 December, 1946.

Hydramnios exists when the amniotic liquor exceeds 3,000 c.c. (5 pints) in volume. In approximately 50 per cent of the instances of hydramnios gross fetal maldevelopments are noted. Twins are commonly found also, usually normally developed. The cause of hydramnios is unknown. In fact even the source of the fluid is not established. Hydramnios occurs once in about 200 pregnancies. It appears most commonly between the twentieth and twenty-eighth weeks of gestation, but may

not cause maternal distress until the last four or five weeks.

The usual method of treatment is to puncture the membrane through the cervical canal. This method is not good in multiple pregnancies since the distended sac is usually found in the upper part of the uterus. This method induces labor and almost invariably results in a dead fetus since most instances of hydramnios occur, and demand treatment, prior to fetal viability.

The author's method of treatment, is as follows: The patient is given 1/3 grain of omnopon and 1/150 grain of scopolamine one hour before the procedure. A spinal needle and trocar with a collecting bottle and the necessary tubing are used for the procedure. The skin is sterilised and punctured with a small tenotomy knife. The canula is inserted into the amniotic sac and the trocar removed. Since the amniotic fluid is rarely under pressure suction may be needed to withdraw the fluid. The author has withdrawn as much as 12½ pints at one time. After completion of the procedure ½ grain of morphine is given and repeated that evening and the following morning. Some of the patients so treated will go into labor but many will not. Usually the amniotic fluid will reaccumulate within three to four weeks, when the procedure can be repeated.

To date the author has not had a resultant infection of the uterine or peritoneal cavities; has not perforated the intestine; has had no hemorrhage from the uterine wall or placental detachment; and has not seriously injured a fetus. Should adhesions bind the intestines to the uterine or abdominal wall this can be easily detected upon physical examination. In the absence of such adhesions the intestines never lie between a uterus of this size and the abdominal wall.

After eliminating those patients in whom the first aspiration was done later than the thirty-fifth week of gestation, 25 per cent of the author's patients so treated eventually delivered live babies. In the few patients checked for the Rh factor it seemed to be of no significance.

The author's series is only approximately 50 patients which he recognizes as too small for any final decision.—*Quarterly Review of Obst. & Gynec.*

Icterus gravis neonatorum.—Henry Third, Aberdeen, Scotland. *Lancet*, 2:635-36, Nov. 2, 1946.

Icterus gravis neonatorum is caused by the isoimmunization of the mother by an antigen present in the fetus (inherited from the father) and lacking in the mother, and the subsequent passage of the maternal antibody to this antigen into the fetal circulation where it exerts various effects. Isoimmunization can take place within the ABO system as well as in the Rhesus system.

Icterus gravis neonatorum presents jaundice at birth, or appearing within a day or two. The typical picture of erythroblastosis is not present always and is not essential for the diagnosis. The first child usually escapes the disease, unless the mother has been previously immunized by transfusions of blood of the improper type. To complete the diagnosis one should find anti-Rhesus or other abnormal antibodies in the maternal blood.

There are 3 pathologic types of icterus gravis neonatorum. In hydrops fetalis the infant is usually stillborn or dies shortly after birth and there are jaundice, edema, and evidence of severe toxemia with large effusions into the serous cavities. In toxic jaundice there is jaundice and evidence of cerebral or extrapyramidal irritation, usually with no erythroblastosis. In the true erythroblastosis the jaundice is less severe, the anemia is evident and severe with the blood picture typical of a severe disturbance of the hemopoietic system.

The treatment at the present time consists of transfusions with group O Rhesus negative blood. Homologous blood is ideal but this necessitates investigating the exact nature of the offending antibody. The group O Rh-negative blood should be given immediately and until the complete antibody investigation has revealed a definitely homologous blood.

Ten or 20 cc. of blood per pound of body weight are given. The infant should be fed artificially as the mother's milk may contain the offending antibodies.

Six infants were treated in this manner. It is concluded that only true erythroblastosis is amenable to transfusions. In "toxic jaundice" there is a grave risk that the child, if it recovers, will be defective to the point of imbecility. No adequate treatment is known to prevent kernicterus, spasticity, and imbecility.—*Quarterly Review of Obst. & Gynecology.*

The present status of the Rh factor.—Philip Levine, Ortho Research Foundation, Linden, N. J. *Am. J. Clin. Path.* 16:597-620, October 1946.

The fundamental basis for the recognition of the Rh factor was laid in 1900, by the rediscovery of the Mendelian laws of heredity, by Landsteiner's discovery of the process of normal isoagglutination in the blood and the four blood groups, and by Ehrlich's and Morgenroth's observation of the phenomena of isoimmunization. At an early date the belief existed that some transfusion reactions resulted from immunization to factors other than A and B. In 1940, by means of rabbit anti-Rhesus blood immune serums, Landsteiner and Wiener discovered the relationship of a factor in Rhesus blood to a property of human blood. In that year also it was shown that human blood which had previously failed to react to the Rhesus serum developed an intolerance to further injections of Rhesus positive

blood after a series of transfusions of that blood. Levine and Stetson, in 1939, observed a pregnant woman who suffered a severe reaction to her first blood transfusion and they postulated that the reaction was due to a dominant hereditary property in fetal blood that was absent from the maternal blood. This theory later became significant when the mother was found to be Rh negative, and all her donors Rh positive. In 1940, Levine and others studied some intragroup reactions which had followed first transfusions in recent preguancies. In most of them, the mothers were Rh negative and their children had a high incidence of erythroblastosis. Levine thought that the two were correlated and suggested that maternal anti-Rh agglutinins crossed the placenta and caused destruction of Rh positive blood.

Some facts about Rh are listed below:

1. More than 90 per cent of the mothers of erythroblastotic babies are Rh negative. In the remaining 7 to 8 per cent, immunization is attributed to a new factor Hr, genetically related to Rh, and probably related to the A and B blood factors.

2. Only 50 per cent of the Rh negative mothers of erythroblastotic babies have anti Rh agglutinins. For the other 50 per cent, the hemolytic process in the fetus was regarded as due to an antibody which was not detectable by routine procedures. Later investigations have shed more light on this problem.

3. Intragroup transfusion reactions in the Rh negative women can be prevented by administering only Rh negative blood to them.

4. Anti-Rh serums differ in specificity. Human serums are far more potent than those produced by injecting animals with either Rhesus or human blood.

5. The hemolytic process in infants is best treated by transfusion with Rh negative blood.

6. Some of the reasons for the low incidence of erythroblastosis fetalis are the current tendency to small families, the fact that more than 50 per cent of Rh positive fathers are heterozygous, and the failure of many Rh negative women to respond to isoimmunization. In regard to the latter fact, the capacity to produce antibodies itself may be determined by some genetic factors.

The mechanism of isoimmunization is discussed. The Rh factor is regarded as limited to red blood cells, and possibly to tissue cells. Levine presents his theory for the method of transfer of the antigenic material across the placenta. It is based on the fact that in the experimental animal extremely small amounts of this material will induce antibody production. In the last half of pregnancy only a single layer of syncytial cells separates the fetal blood from the maternal sinuses. The large surface areas thus exposed to each other afford ample opportunity for the passage of antigenic material. This idea is compatible with the clinical observation that the pathologic effects of isoimmunization by the Rh factor are seen almost exclusively in the fully or almost fully developed fetus.

Incompatibilities of the Rh factor do not cause early abortions. The increased incidence of abortions in Rh negative mothers of erythroblastotic babies may be a result of the action of antibodies developed in a preceding full term pregnancy and deserves further investigation.

Wiener's theory that isoimmunization occurs only during labor is discussed. Transfer across the placenta must occur during pregnancy to explain the appearance in the last half of pregnancy of antibodies which had not been demonstrable six weeks previously.

At present, there are no measures which will prevent the silent process of transplacental transfer. The use of antigens, as pertussis vaccine or tetanus toxoid, early in pregnaney, is suggested by Levine as a possible method of preventing antibody formation. Specific preventive measures must await the extraction of substances called "haptens" which have the capacity to neutralize the activity of anti-Rh antibodies, without stimulating their production.

Tests for detection of isoimmunization are considered. In the first study on the pathogenesis of erythroblastosis, Levine realized that the 50 per cent of the mothers who did not show anti-Rh agglutinins were actively immunized because of the presence of hemolysis in their infants, and the occurrence of severe intragroup transfusion reactions in the absence of anti-Rh agglutinins. The tests at first were not very sensitive. Since then certain antibodies which can unite with Rh positive blood cells without visible agglutination have been demonstrated and have been called blocking or inhibiting antibodies. Tests for these antibodies have been very useful. The results of the quantitative studies of several varieties of maternal antibodies are of value in estimating fetal prognosis. The infant's blood should be studied in the neonatal period to correlate the severity of his condition with quantitative studies of maternal antibodies persisting in his circulation. Intensive studies on the properties of the several varieties of agglutinins and blocking antibodies are essential to a complete understanding of erythroblastosis and should always be carried out in doubtful cases.

The genetics of Rh-Hr blood types is reviewed. The contrasting theories of Wiener and Fisher and Race are discussed. The genetic theories can be applied to determine the genotype of fathers of erythroblastotic babies. If possible, Rh negative offspring can be excluded in this manner. The author suggests that in selected instances, characterized by intense isoimmunization

and a history of severe erythroblastosis in more than one infant, an early accidental pregnancy may be terminated. It is still questionable whether or not pregnancy should be allowed several years after the antibodies have disappeared.

Because of the general importance of Rh testing, the author suggests two rules for public health authorities: (1) all patients must have an Rh test before a blood transfusion; (2) all Rh negative patients must receive only Rh negative blood, whether by intravenous, subcutaneous, or intramuscular routes.

If these rules are adopted, the incidence of erythroblastosis fetalis and serious intragroup transfusion reactions will be greatly reduced. The author mentions that all Rh negative women with potent agglutinins or blocking antibodies should submit to periodic blood lettings, to assist in building up an adequate supply of these diagnostic serums.—*Quarterly Review of Obst. & Gynec.*

Constriction ring dystocia.—M. Pierce, Rucker, Richmond, Va. *Am. J. Obst. & Gynec.* 52:984-92, December 1946.

Constriction ring dystocia is that form of soft part dystocia characterized by the formation within the uterus of one or more bands of uterine muscle. These bands form opposite depressions of the fetal ovoid and may occur at any level. The band may entirely encircle the fetus or may extend only partially around the fetus, but in either case, so long as the ring lasts the fetus is effectively anchored to the uterus, and there is no further progress in birth in spite of painful uterine contractions. A constriction ring is not a Bandl's ring although the two are often confused. The older writers recognized the condition and called it irregular contraction of the uterus. The term constriction ring is preferable to contraction ring because the latter has frequently been used as a synonym of Bandl's ring.

The present paper is a discussion of 202 instances of constriction ring dystocia that have occurred in 13,575 term and near term deliveries in the past forty-three years. The diagnosis depends upon actually feeling the constriction with the hand within the uterus. The condition should be suspected when there is no obvious cause for the failure of labor to progress in spite of hard "pains." If, upon vaginal examination, the cervix hangs loosely about the presenting part, the suspicion is heightened.

Many causes have been advanced, ergot, pituitrin, rupture of the membranes, bags, intra-uterine manipulation, and malposition. In 5,111 patients in whom labor was induced by amniotomy, constriction rings occurred in 1·46 per cent. In 2,244 patients in whom a bag was used, constriction rings occurred in 1·25 per cent. In 6,221 patients in whom labor was not induced, constriction rings occurred in 1·61 per cent. In 748 patients in whom pituritin was used in the first stage of labor, constriction rings occurred in 2·8 per cent, and in 483 dry labors (spontaneous rupture of the membranes) there were constriction rings in 2·7 per cent. As to malpositions, occipito-anterior position was found in only 30 per cent of the patients with constriction ring dystocia. There were 87 normal pelves in the 139 patients in whom the pelvic measurements were recorded. The average age of the patient with a constriction ring was 28½ years which is more than two years greater than the average age of the whole series. Thus it is seen that there is no common factor, but the whole group presents a somewhat unfavorable selection as obstetric risks—increased age, abnormal presentation, and borderline pelvis, which fits into a working hypothesis that the ring is a fatigue phenomenon.

Constriction rings may occur at any time in the three stages of labor. When it is suspected early in the first stage on account of the character of the pain and the lack of progress, the patient should be given magnesium sulfate intravenously or morphine or demerol, and encouraged to sleep. If the patient is not allowed to become dehydrated, and if there is no amniotic sac infection, there is no reason to worry about the length of labor. Most rings are reversible, and after a good rest, labor is apt to progress in a more normal manner. On the other hand, when the ring forms late in the first stage or after the cervix is fully dilated, and one can relax the ring the baby can be delivered by version and extraction or by forceps with greater safety than subjecting it to an eight or ten hour second stage while the ring is relaxing spontaneously. Dragging the baby through a ring that is not relaxed is not good obstetrics. Various means have been used to relax constriction rings: deep ether anæsthesia, amyl nitrite, magnesium sulfate. The author found that in 150 patients, 5 to 8 minims of epinephrine administerd intramuscularly caused the ring to relax in 142. One mother was lost before the author began to use epinephrine, and the fetal mortality was almost 50 per cent. Since the advent of epinephrine there has been no maternal mortality and the fetal mortality has been 17½ per cent.

In his summary the author calls attention to the fact that he has found constriction rings in a higher percentage (1·67 per cent) than usual. He thinks that the condition often is overlooked and that an unsuspected constriction ring is frequently the cause of a difficult forceps operation, which could have been made an easy operation had the constriction ring been recognized.—*Quarterly Review of Obst. & Gynec.*

DERMATOLOGY

The differential diagnosis and treatment of scabies in early infancy.—A. P. Jordan, *Pediatrys* 3:59, 1944.

The author claims that the diagnosis of scabies in newborn and young infants is not always an easy one for the following reasons: First, the scabies dermatitis in young infants is often eczematoid in character; second, the scabies burrows, contrary to what would be expected, are not prominent, and, third, the fingers and wrists, which are the favorite locations of scabies burrows in adults, are usually spared in young infants. The author claims that the trunk is by far the most common location for the scabies burrows in young infants.

Scabies dermatitis in young infants usually appears in the form of small vesicles followed by the formation of small nodules and pustules. The rash shows a predilection for the trunk, especially the back, the buttocks and the extensor surfaces of the lower extremities. The chin and the lower half of the face are a common location in breast-fed infants who become contaminated during nursing. The eczematoid form of scabies in young infants may have to be differentiated from a mild infantile eczema, and the characteristic location of the scabies dermatitis is one of the most important differential diagnostic points. Furthermore, scabies is a relatively rare disorder in the young infant, as may be judged from the author's experience at a large children's clinic in Moscow, where for every 10 cases of infantile eczema the author saw only one case of scabies.

As an ideal treatment for scabies in young infants the author considers a 10 per cent preparation of balsam of Peru. Next best is the following prescription: sublimed sulfur, 5·0, pine tar, 3·0, and petrolatum, 100·0. Zinc oxide ointment may be substituted for half of this quantity of petrolatum in the presence of an extremely sensitive skin. It is advisable to apply the ointment twice daily, to be followed by a bath on the fourth day, of treatment. Not more than two weeks are usually required for a complete cure with this form of therapy. In the rare event of a development of a sulfur dermatitis the author suggests the use of the following preparation: zinc oxide, 10·0, aromatic castor oil 10·0, and olive oil, 40·0.—*A.J.D.C.*

Regressive changes in leprosy under promin therapy.—Fite, G. L. & Gemar, F., *Southern Med. J.*, 1946, Apr., v. 39, No. 4, 277-82, 1 fig.

This important paper records the results of the use of promin in the treatment of leprosy, over a period of four years. Daily intravenous doses, usually of 5 grammes, have been given over periods of three weeks, with an interval of one week between the courses. In some cases this treatment was continued for more than 4 years, with beneficial results in nearly all. Clinical improvement is slow and reduction in the number of lepra bacilli still slower, but progress is nearly always steady, and relapses or febrile exacerbations very rare. Repeated microscopical examinations of the skin lesions showed disappearance of inflammatory signs and diminution in the number of bacilli, but the latter often did not disappear completely, although typical cigar-like packets of organisms become extremely rare. The greatest decline in the number of organisms were seen during the fourth year of treatment, by the end of which they had disappeared from 21 of 42 patients. With one exception the skin lesions showed extensive evidence of atrophy. The deeper foci of infection showed the greatest diminution in size and in the number of bacilli; this may be due to the fact that there is a better blood supply at these sites, which brings the drug into closer contact with the bacilli. The lipoids in the affected tissue remain undiminished, and many vacuolated fatty cells persist. Fibrosis is not a feature of regressive lesions.

The drug appears to act by ridding the blood vessels of lepra bacilli and so preventing their spread throughout the body to form new and progressive lesions. There is little evidence that promin destroys the bacilli in the tissues, but they gradually decrease in the old lesions in accordance with the self-healing tendency of leprosy. This explains the slowly beneficial action of the drug. The absence of acute reactions strongly suggests the destruction of the organisms in the blood and the prevention of their dissemination through the body as the essential action of this treatment, and their gradual reduction in the tissues to the point of final disappearance, as was observed in 10 out of 32 cases treated for four years. A still more powerful bactericidal agent is required for the chemical destruction of bacilli within the tissue cells, and especially in the globi laden with the organisms. Chemotherapeutic research with drugs of allied composition seems most likely to furnish this requisite.—*Leprosy Review.*

Skin diseases due to vitamin deficiencies.—Erich Urbach, *Pennsylvania M. J.*, May, 1946. The cutaneous diseases resulting from vitamin deficiency are—Vitamin A: Hyperkeratosis, Darier's disease, pityriasis rubra pilaris, lichen rubra ichthyosis, Sjorgren's syndrome, keratinization, xeroderma pigmentosum, brittle nails, acne. Vitamin B complex: Seborrhoeic dermatitis, dermatitis syndrome, macrocytic anæmia with absence of free hydrochloric acid, glossitis with dysphagia and hypochromic anæmia. Vitamin B_1: Cutaneous syndrome of beri beri, chronic eczema, cutaneous and neurologic signs of acrodynia. Riboflavin: Cheilosis, angular

stomatitis, shark-skin dermatitis, crusty or scaly desquamation, rosacea keratitis. Niacin: Pellagra. Biotin: Abiotinosis or "egg-white injury." Vitamin C: Scurvy, follicular hyperkeratosis, hyperpigmentation, delayed wound healing, drug sensitization. Vitamin K: Hæmorrhagic disease of the newborn, cutaneous purpura, ecchymoses, blood extravasation, chronic urticaria.

Advanced rickets, in which the skin is pale, overly rich in water and prone to infection, is the only recognized dermal effect of vitamin D deficiency. However, cases of pustular psoriasis, pemphigus and scleroderma have responded to large daily doses of vitamin D.

The purpuras that have responded to treatment with vitamin P are: Allergic, infections, nutritional, Henoch's, measles and arsenic. Avitaminosis P, produced in two male volunteers, caused a definite decrease in capillary resistance, perifollicular petechial hæmorrhages, purpura over pressure areas, increase in bleeding time, pains in the legs on exertion, weakness and easy fatigability.

Since a single vitamin deficiency is rare, therapy should provide a proper balance of all vitamins. The formula used is that advocated by Spies, 10 mg. of thiamine hydrochloride, 50 mg. of niacin, 5 mg. of riboflavin and 75 mg. of cevitamic acid. If symptoms of one vitamin deficiency are dominant, this formula is supplemented by additional amounts of that particular vitamin.—*G.P.*

Treatment of psoriasis.—Dr. Lawrence Frank, *New York State Journal of Medicine*, August 15, 1947, has treated twenty cases of psoriasis by means of diethylstilboestrol, as an adjunct to local applications. The daily amount given was 2 mgs. In five of the cases the disease was of recent date. These were treated by means of diethylstilboestrol by mouth and the following ointment locally: **Alumin. Acetat. Liq.**, 10 parts, Adep. Lan. Hydros., **20 parts, and** Past. Zinci. 30 parts. In from five to ten weeks all these five cases were completely cured. Out of the twenty cases, ten showed moderate to marked improvement in from six to ten weeks. Three did not give any signs of being improved. In all the cases that improved under this method of treatment, it was noted that the improvement during the first three weeks was slow or indifferent, but after that it became more apparent and rapid.—*Medical World.*

Tyrothricin in the treatment of diseases of the skin.—Andrew G. Franks, William L. Dobes and Jack Jones, *Arch. Dermat & Syph.*, May, 1946. Forty-seven cases of cutaneous diseases were treated with either wet dressings or ointment containing tyrothricin. Twenty cubic centimetre vials of tyrothricin, containing 0·5 milligrams per cubic centimetre, were diluted to 1,000 cubic centimetres with sterile distilled water for the wet dressings; for the ointment applications, each gram of greaseless base contained 0·3 milligrams of tyrothricin in true solution. The treated lesions included: sycosis vulgaris, pustular acne, impetigo contagiosa, seborrhoeic, dermatitis with secondary infection, ecthyma, trichophytosis secondarily infected, decubitus ulcer, pyederma, dermatitis repens, acrodermatitis perstans, nummular eczema. The authors were unable to find any publication dealing with this particular problem. The drug was found to be effective in cases of: impetigo contagiosa, pyederma and dermatitis repens; it was of little benefit in the other cases. In those eruptions which were secondarily infected with haemolytic streptococci, the response was good. The four cases of contact dermatitis which occurred only among those patients given ointment, were believed to be due to the sodium ethyl mercurithiosalicylate 1:40,000 used as a preservative in the ointment. —*G.P.*

News and Notes

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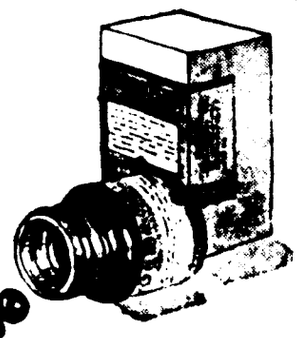

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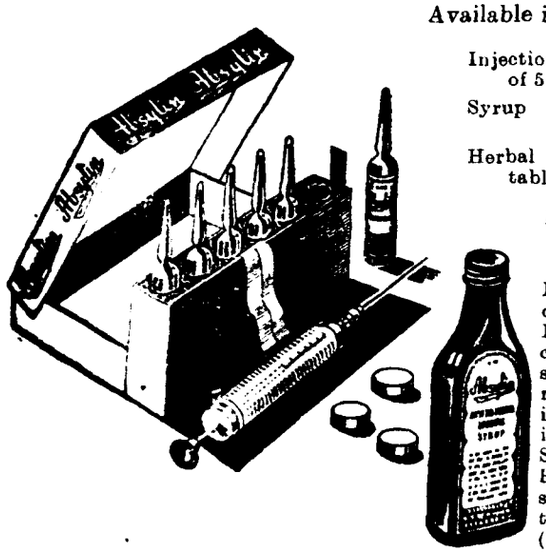

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