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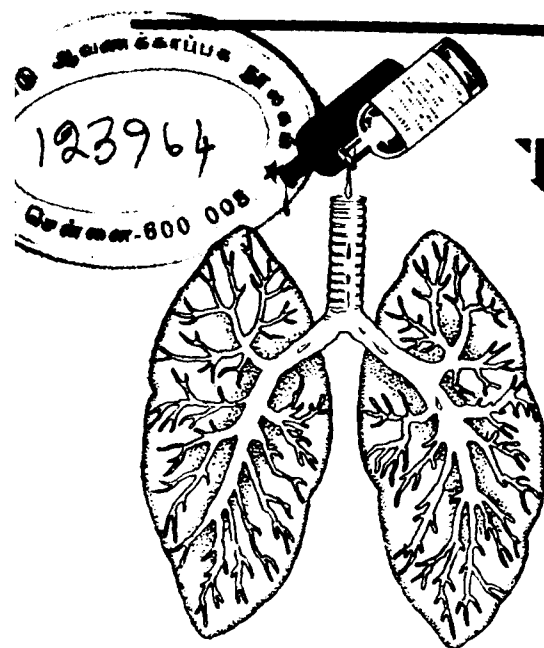
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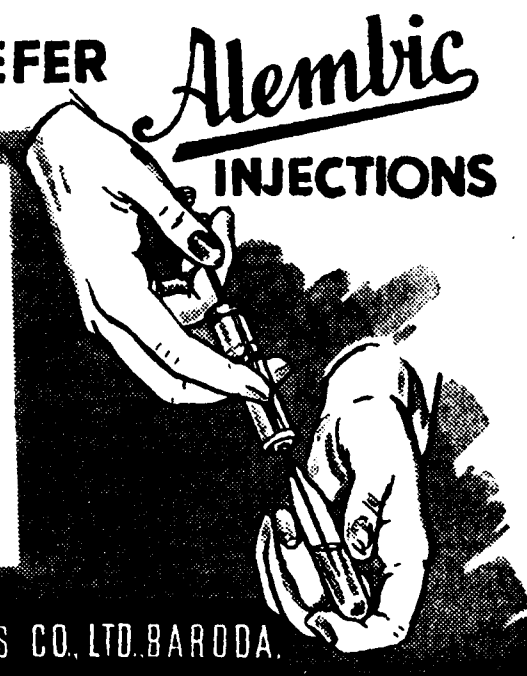
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## ADDRESSES AND ARTICLES

### The Foundations of Dietetics \*

● A. Sreenivasan, M. A., D. Sc., A. I. C.,

(Agricultural Chemist, Institute of  
Plant Industry—Indore)

Among modern developments adding to our insight into the processes of life, enabling us to understand these processes better and, in some measure, to control and improve them, perhaps the most important is the recent growth of knowledge in the science of food and nutrition. It has often been said that "half the struggle of life is a struggle for food"; while, for the more fortunate minority among us, food does not demand so large a proportion of the income yet, at the economic level at which the majority of families still live, as much of their earnings is spent upon food as upon all other items in the cost of living. This is indeed as it must be, if health and efficiency of the human race are to be maintained. This fact calls for the enforcement of laws for the protection of consumers, through chemical service, against adulteration and misbranding of foods. It also makes necessary the teaching of food values in schools and colleges and, where possible, even directly to the public. And it has stimulated widespread chemical research upon the principles of nutrition and upon the nutritive values of foods. So productive has been this recent research that present day knowledge of the subject deals almost entirely with the findings of the past 40 years.

### COMBUSTION OF FOOD INSIDE THE BODY

Even as late as some 150 years ago, very little was known about nutritional science. Food was then regarded as essential only to prevent death from starvation. It was assumed that, in some mysterious way, the body abstracted from the food a living, dynamic force which enabled it to maintain its energy. It was Lavoisier who gave the correct explanation of the true process of metabolism inside the body. He had proved that organic foods contain carbon and hydrogen and that, in the process of burning, these elements became combined with the oxygen from the air to form carbon dioxide and water with the liberation of energy. He also showed that respiration was a precisely similar phenomenon and again carbon dioxide and water were the end products. He therefore concluded that the human body obtained its energy by burning food at a low temperature.

\* In this and in two subsequent articles, the author traces, in simple and non-technical language, the development of the recent growth of knowledge in nutritional science and its application in practice, under Indian conditions. Ed.

## THE 'RESPIRATORY' AND THE 'PLASTIC' FOODS

It was not possible to make much further progress until the chemists had worked out in detail the essential nature of foodstuffs. The greatest of the 19th century chemists was Liebig. He had devised and perfected a way of analysing organic matter, that is to say, compounds obtained from plant or animal origin. He recognized the new idea that the energy of the animal body comes from the carefully regulated burning up of foods and, accordingly, he divided foodstuffs into two classes—those that went to supply energy, the respiratory foods as he called them, consisting of sugars and fats—and those that went towards the building up of new tissues and repair of old ones, the plastic foods which are the nitrogen containing foods or proteins.

## 'ORGANIC' AND 'INORGANIC' SUBSTANCES

During this period, it had always been considered that there was some essential difference between mineral or non-living chemical compounds and those which were found in animal and vegetable kingdoms. These latter were said to be formed only through the agency of life or, in other words, by "vital forces." Hence, the former were called inorganic and in the latter, organic compounds. In 1828, Wohler, a great friend of Liebig, shattered for ever the distinction between the organic and the inorganic. He was able to prepare artificially the substance known as urea which had previously been found only in animal excreta. For the first time, an organic compound was prepared without any "vital" interference. There was thus no basis any longer for the distinction between compounds of inorganic and organic origin. The division has however come to stay, more as a matter of convenience than anything else. According to this, all compounds containing carbon are classed as organic.

## THE FOOD CONSTITUENTS

Wohler's discovery started a whole train of work on the artificial synthesis of substances. This, in turn, has thrown a flood of light on the essential nature of food-stuffs. From all these findings have gradually emerged the true principles of diet as we know them to-day. It began to be realised that the total energy put out by the body must be met by the 'combustion' of the food-stuffs and tissues in the body. It also became known that the structural organic constituents of all foodstuffs consisted of proteins, fats, and carbohydrates. These, together with certain mineral elements and, of course, air and water were considered prime necessities for life.

## CARBOHYDRATES AND FATS—THEIR INTER-CONVERSION IN THE BODY

The carbohydrates and fats supply energy for heat and muscular work. They are usually well represented in all the foods. The inter-conversion of fats and carbohydrates inside the human system is an interesting feature and has been demonstrated from very early times. The readiness with which farm animals are fattened on essentially carbohydrate foods must have convinced early observers. The experiments of Lawes and Gilbert demonstrated this most conclusively. Several pigs of the same litter and of the same initial weight were taken. Some were killed and analysed as controls while the others were fed on known rations and, later, weighed, killed and analysed to determine the kinds and amounts of material stored in the body. In most cases, the amounts of fat stored during such feeding trials were much larger than could be accounted for by the fat fed. It has also been shown that carbohydrates contribute to the production of milk fat. Thus, milch cows kept upon food nearly free from fat, continued to yield milk with fat content greater than could be accounted for by the fat and protein of the food and, in addition, the cows gained in weight and their appearance showed that they had more body fat at the end than at the beginning of the experiment.

Without going into the details of the mechanism by which fats and carbohydrates get interconverted, it may be pointed out that consumption of food containing more than the normal requirement of these two constituents is followed by their transformation and storage as body fat.

## THE FOOD PROTEINS: THEIR COMMON SOURCES

The proteins provide material for body growth and for the repair of its tissues. They are also the source from which the body elaborates certain enzymes and glutathione, thyroxine, adrenalin and insulin, all of them essential for the speeding up of the chemical processes. Our present knowledge of the nutritional chemistry of the proteins and the protein chemistry of nutrition is due largely to the efforts of Hopkins in England, Fisher in Germany, Osborne in America and their associates.

As chemical individuals, all the proteins are built up of simpler substances known as amino-acids. There are more than a score of these; some of them are more or less interchangeable while others are nutritionally essential in the sense that they must be supplied through the food proteins. Among the essential amino-acids are lysine, histidine, tyrosine and tryptophane. Depending upon the nature and extent of occurrence of the different amino-acids in a particular food protein, it is said that the latter has a high or a low biological value. Animal

proteins are usually well represented in the essential amino-acids and hence have a higher biological value than proteins of vegetable origin. As the supply of proteins must be of the right kind to give all the essential amino-acids, it is necessary that a part at least of the total food intake must be of animal origin. All common foodstuffs contain proteins to varying degrees. Among good sources of animal protein are milk, meat, eggs and fish; vegetable proteins are supplied chiefly by pulses, nuts, whole cereals and green vegetables.

## THE MINERALS IN NUTRITION

The mineral elements or salts in food provide building material for the fabric and regulate various functions of the body. The fact that some of the mineral elements or ash constituents are essential to the anatomical structure and nutritional functioning of the body has long been known, but only during the first decade of the present century, systematic work has begun to establish the quantitative needs for these elements in nutrition and their distribution among the chief articles and types of food. There are about twenty constituents of which eleven are essential. The more important among these are calcium, phosphorus, iron and iodine, both on account of their own functions and also because they are likely to occur in insufficient quantities in average diets.

Calcium forms an important constituent of bone and is specially lacking in average Indian diets. Milk is a good source of calcium and green and leafy vegetables also supply this in appreciable amounts. Phosphorus is also necessary for bone formation and is an important constituent of cell nuclei. There is no evidence of any phosphorus deficiency in Indian cereal diets. The ratio of calcium to phosphorus is an important factor affecting their availability to the human system. For optimum absorption, this should be in the neighbourhood of 1:1 or 2.

Iron is also needed for cellular activity and is a constituent of the red pigment in blood. It is present in enough quantities in green vegetables, fruits, nuts, etc. Iodine is a constituent of the thyroid gland and of its active principle thyroxine. Though needed only in extraordinarily small amounts, its deficiency leads to serious disorders such as goitre and cretinism. Good sources are eggs, cloves, ginger, black pepper, etc.

## THE TRACE ELEMENTS—THEIR SOURCES

Most of the minerals are essential only in small amounts. Larger intakes are, in fact, injurious to health. There are a variety of ways in which these minor elements enter the human system. Many of them are naturally present in the common foods, particularly, vegetables. The

actual quantities with vegetables are determined partly by their individual character and partly by the composition and reaction of the soil in which they are raised.

Some of these elements are artificially introduced into foods in the form of preservatives or colouring matters. This practice is fortunately diminishing, thanks to better knowledge and scientific control. Still another and a more potent source of a number of elements is the use of metallic containers for cooking and storing articles of food. In recent years, metallic utensils made of aluminium, brass (generally tin-coated), bronze, lead, enamelled ironware and a host of other materials, have almost entirely displaced the traditional earthenware vessels. Cooking and storage of foods in such containers result in appreciable quantities of the metals passing into the foods. The actual quantities vary of course with the composition of the container, the nature of the food material and the extent of cooking. It may be stated, in general, that Indian (especially South Indian) foodstuffs are, by nature, fairly corrosive to metals. The result has been that the average Indian is unwittingly taking unusually large quantities of the trace elements which is not altogether desirable. This fact is not as well realised as it ought to be.

The process of canning, especially of fruits, is yet another source of various metals, but the quantities have tended to diminish with the introduction of lacquering in recent years. Lacquering is still not done in all cases, at any rate properly, with the result that many of the cheaper brands of canned fruits in the market contain quite considerable amounts of iron, tin, lead and other metals.

Many of the minor elements are sometimes taken in quite large quantities in the form of medicines. They are generally administered as the oxides or sulphides of mercury, copper, iron, tin, zinc, and even gold and silver which are all sparingly soluble. Several of the *bhasmas* of the Indian systems of medicine belong to this class. The curative effects of these preparations are perhaps attributable to the absorption by the human system of traces of these elements.

While thus it is absolutely essential to provide adequately for the proper supply of the minor elements concerned in nutrition, it is equally important to exercise great care in the choice of food and in their methods of preparation and storage so as to avoid excess of these elements.

## THE DISCOVERY OF THE VITAMINS

After the discoveries of the great 19th century chemists and physiologists, it appeared that our knowledge of the necessary constituents of food was pretty complete, if not detailed. Yet, all attempts to build up a satisfactory diet artificially

from pure substances met with failure. Animals would not grow on a diet which should have been adequate in the light of all accumulated chemical knowledge. Not until 1912 was fresh light thrown on the matter by Hopkins. He fed groups of young albino rats upon artificial mixtures of pure, isolated milk protein and carbohydrates, fats and salts. At the same time, other groups of rats were fed with exactly similar food but with the addition of a minute ration of fresh milk. If the constituents were pure, the rats who had no fresh milk failed to grow, although they ate just as much as the others. Later, their appetites failed, but the important point was that they ceased to grow before they ceased to eat. The synthetic milk diet was wanting in some factor which is found in fresh milk and which is essential for growth.

Comparable discoveries from another direction were forthcoming in connection with a disease known as beri-beri which had been extremely prevalent in the East. The Japanese navy had suffered very severely from this and it had been found by Takaki, a naval officer, that an improved diet was all that was necessary to combat the sickness. He considered that the disease was associated with a deficiency of proteins. Later, Eijkman was able to produce a very similar sickness in fowls which were fed on a diet of polished rice. Next, he showed that by adding to the food some of the polishings of the rice, the disease could be cured or prevented. This was the time when Pasteur's work on the alcoholic fermentation of sugars, the souring of milk, the 'diseases' of urine and beer, anthrax in sheep, and hydrophobia in man, was gaining wide recognition. The idea that all pathological disorders are due to bacteria was therefore widely prevalent. Following on this, Eijkman concluded that polished rice contained a toxin responsible for beri-beri and that the bran contained an antidote for it. This explanation, however clever, was not correct for, it was shown, a few years later, by Fraser and Stanton in their epoch-making discoveries, that the peripheral layers of the rice grain contained a substance of high physiological importance and that this is lost or removed on polishing.

VITAMINS A, B<sub>1</sub>, B<sub>2</sub>, C, D AND E

Then began the hunt for the essential life-giving products which we know to-day as vitamins. We now possess definite knowledge of the existence of several of these accessory food factors. The most important are vitamins A, B<sub>1</sub>, B<sub>2</sub>, C, D, and E. Without going into details, it may be stated briefly that vitamin A is essential for growth and reproduction, its deficiency resulting in a general lowering of resistance to infections and certain eye affections particularly, night blindness. Vitamin B<sub>1</sub> is necessary for the proper maintenance of nerve issues. It promotes assimilation of food and plays

an important part in normal carbohydrate metabolism. It is the prime causative factor of beriberi. Vitamin B<sub>2</sub> deficiency is associated with human pellagra and angular stomatitis. This vitamin is also concerned in maintaining the integrity of the nervous system and the health of the skin. Vitamin C has a specific relation to the supporting tissues of the body and to the normal health of the smaller blood vessels. Its deficiency leads to scurvy, hæmorrhages, sallowness of the skin, imperfections in the teeth and gastrointestinal disorders. Vitamin D is essential for the proper assimilation of calcium and its absence leads to rickets. It is produced by irradiation from sterols which are present in all fats and hence this vitamin is not of major importance in tropical countries where there is plenty of sunshine. The influence of vitamin E is essential for the functional efficiency of the reproductive system.

#### THE INGESTION OF FOODS—THE DIGESTIVE FERMENTS

A brief account of the manner in which the different food constituents are absorbed and assimilated inside the human system may not be out of place here.

The carbohydrates, fats, and proteins, as they exist in food are, in most cases, not of a nature to be used by body tissues in the exact form in which they are taken but must usually undergo more or less alteration in the digestive tract to fit them for absorption and assimilation. These changes are mostly brought about by the action of the digestive ferments or enzymes.

First comes the action of the saliva whose secretion is controlled by psychic as well as chemical stimulus. As the food comes in contact with the saliva, the digestion of starch and dextrin, under the influence of the salivary amylase, begins at once. Here comes the importance of thorough mastication. Usually, the food stays too short a time in the mouth for the starch to be acted upon to any great extent and, at one time, it was supposed that salivary digestion must cease almost as soon as the food reaches the stomach because, the acidity of the gastric juice is unfavourable to the action of this amylase. This view has been disproved and it is now known that salivary digestion continues even after the food reaches the stomach.

As the food passes into the stomach, it is subject to the action of the gastric juice, the chief constituents of which are hydrochloric acid and pepsin. There, the digestion of the proteins and fats begins. The food then passes into the intestines in the form of a liquid chyme. In the small intestine, the bile, the pancreatic and the intestinal juices act upon it and further digestion of the protein, fat, and carbohydrate constituents

takes place. Absorption of the digestion products occurs rapidly in the small intestine. Further absorption of the digestion products and of water follows in the large intestine. The residual material gradually becomes more solid and takes on the character of faeces.

#### THE PRODUCTS OF DIGESTION—THEIR ROLE

As for the break-down products, the carbohydrates are converted into glucose. Part is stored as glycogen in the liver and the rest is carried through the blood stream. The glucose is oxidized to carbon dioxide through the oxygen breathed in.

Fats are split into fatty acids and glycerol which, on absorption, are recombined into neutral fat. Fat leaving the blood may be burned as fuel or stored for use as fuel later. As already pointed out, carbohydrates and fats derived from food may also be stored as body fat.

The proteins are hydrolysed into amino-acids in the digestive tract. These pass through the intestinal wall into the blood and are rapidly absorbed into the various tissues which re-synthesize the particular kind of protein characteristic of the tissue in question. The proteins thus synthesized may, like the fats and carbohydrates, be oxidized as fuel for muscular work. Excess of protein is deaminized and excreted.

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It is always advisable to begin treatment with small doses and when the individual dose is once found it should be maintained. Generally in adults of average constitution per oral dose of 0.05 to 0.3 gm. (gr. 1/2 to gr. 1 1/2) daily is sufficient. The initial dose should not be more than 0.05 gm. (gr. 1/4) and when this is well tolerated, higher doses may be given. Women and delicate men and infants vary according to age and constitution from 1/4 to gr. 1 1/2 per diem. When NUNAL is given continually, the dosage after a few days should be interrupted for 24-48 hours in order to ensure excretion and minimise cumulative effects.

NUNAL is administered strictly under medical advice. In cases of asthenia and great debility NUNAL should be used with caution and only in small doses. In patients with marked diseases of the liver, heart or kidneys, use of NUNAL is not advised.

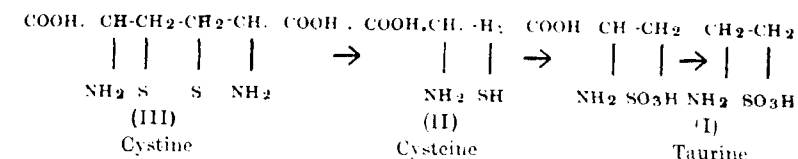
ORIGINAL PACKING: Tube containing 10 tabs of gr. 1 1/2 gr. each.

#### Bile as a Drug

• U P. Basu, D.Sc., P. R. S.

(Bengal Immunity Research Laboratory, Baranagore, Calcutta)

Human bile is a golden brown alkaline liquid containing inorganic salts, sodium salts of conjugated bile acids, and small amounts of cholesterol, lecithin and bile pigments. Its main function is to promote the resorption of fats and of cholesterol in the intestinal tract. The bile acids present are also absorbed along with fats, but most of them enter portal circulation, and are carried to the liver and again secreted in the bile. The bile acids are thus found to traverse a cycle under normal conditions of the body.



Precursors of bile acids are, therefore, protein (supplying glycine and taurine), and fats or sterols (supplying cholic acid).

The deficiency in the normal circulation of bile may lead to various diseases like dyspepsias, intestinal indigestion, jaundice, anaemia, and vitamin D deficiencies. This deficiency may be due to impaired formation of bile in the liver as in toxæmias and cirrhosis. The liver may also fail to secrete bile normally. Or, flow through the bile ducts may be impaired by obstruction. The biliary function may, however, be promoted by increasing the formation of bile in the liver cells (cholepoietic), stimulating hepatic secretion of bile (choloretic) and by promoting emptying of gall bladder (cholagogue). This may be simply done by ingesting natural bile. But since natural whole bile is unstable and unpalatable liquid, its therapeutic use is generally limited.

An alternative therapy is the substitution of the bile salts themselves which may be easily isolated from the gall bladder bile. The raw bile is evaporated to dryness with the addition of animal charcoal. The pasty mass obtained is extracted with alcohol and the alcoholic solution on dilution with ether affords the conjugated bile salts consisting mainly sodium tauroglycocholates. They are good cholagogue, help in the congestion of liver constipation and assists pancreatic digestion by keeping water-insoluble substances in solution or dispersion. The drawback is that they lower the blood pressure and are heart depressants. Further they cannot be used parenterally as they are hæmolytic. The individual salt may be separated out by treating an aqueous solution of the bile salts with lead acetate when the less soluble lead salt of glycocholic acid C<sub>23</sub>H<sub>26</sub>(OH)<sub>3</sub>CONHCH<sub>2</sub>COOH separates out. The mother liquor would afford the corres-

ponding salt of taurocholic acid C<sub>23</sub>H<sub>26</sub>(OH)<sub>3</sub>CONHCH<sub>2</sub>CH<sub>2</sub>SO<sub>3</sub>H. Sodium taurocholate produces more fall of blood pressure. Each on hydrolysis with alkali affords the same acid, cholic acid, C<sub>24</sub>H<sub>40</sub>O<sub>5</sub>, m. p. 195°, but the other fission products are glycine, NH<sub>2</sub>CH<sub>2</sub>COOH (an amino acid usually found as a protein unit) from sodium glycocholate and taurine (I) derived from the amino acid cysteine (II) or rather cystine (III) of the food (largely present in milk albumin), in case of sodium taurocholate.

Cholic acid is the most abundant of the acids obtained from bile salts. Its yield from Indian ox bile (Basu *et al*, 1940) is however, found to be much less than that available in the bile of the continental animals (Wieland and Weyland, 1920). This acid also readily forms sodium salt, but owing to its toxic properties this salt also cannot be used in medicine. The oxidation of the three hydroxyl groups present in the molecule to the corresponding Keto groups affords the triketo cholanolic acid (VI)—better known as dehydrocholic acid which is found to be a powerful cholagogue. (Sternar, *et al*, 1931) a good bile stimulant and at the same time a diuretic (*cf.*, Wakefield *et al*, 1929). The acid readily crystallises from alcohol in fine slender needles, m. p. 233-34° and readily dissolves in alkaline solution. The sodium salt may be safely used even intravenously as it is almost non-toxic and practically non-hæmolytic in action. Dehydrocholin of Bengal Immunity contains this acid in tablet form, and its sodium salt in solution.

Thus, starting from the bile of an animal one may obtain drug that is not only helpful in the treatment of various diseases but also assist indirectly in the digestion of foodstuffs.

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## On the Effects of Methylene Blue in Leprosy Lesions

• Dr. O. DE Loiola Pereira

Director Da Leprosari Central De Goa (Port., India)

It was in 1933 that Gordon A. Ryrie published the first experiments made with methylene blue together with 16 other different aniline dyes on patients of Sanguai Buloh Colony (Straits Settlements). This also confirms R. Montel to whom erroneously many authors attributed the priority in employment of this drug.

However Souza Araujo says Migual Couto and Mario Rangel had it employed in 1927 for treatment of leprosy in Rio de Janeiro.

In 1934, R. Montel published his famous works and through these methylene blue gained a world fame and caught the attentions of leprologists of all countries. The treatment of leprosy by methylene blue came to be known by the name of "Montel method".

Since then the memories and communications of various authors from all over have increased the bibliography on methylene blue warning the discussions around its use and effects.

The Official methylene blue has appearance of an odourless and tasteless crystal powder, soluble in 20 parts of cold water. It belongs to the big group of aniline dyes. It was used before as a sedative in rheumatic pains, neuralgias, neuritis, tabes, etc. and above all for intermittent fevers. It used to be employed also in nephritis to get the diagnosis of renal permeability.

We employ a solution of 1% methylene blue in bi-distilled water with the components sterilised separately and mixed at the time of application in aseptic containers. The initial dose was of 5cc. in weekly intravenous injection, increasing the immediate one by 5cc., thus the patient receiving maxim dose of 35cc. each time. Children of 10 to 12 years had half of this dose. The total duration of the treatment was 18 weeks. Many of our patients suspended the treatment soon after the first injection.

The tolerance is perfect and generally all the patients bear the treatment, though prolonged and in high doses. This is affirmed by almost all the authors who worked on the subject.

However, there are some who have observed a certain number of complications in the course of treatment.

The immediate effects observed by Montel were stopping of neuralgias, improvement of sleep, appetite and of general condition. The treatment

arrests the increase in the cutaneous lesions and rapidly cures the ulcerations and other boils which cease to discharge from the very beginning the bacillary seretion. Even the trophic ulcers have benefited by the treatment within two weeks to three months. The bacillary discharges from the nose also cease within a short time. He saw the action of methylene blue was better in recent lesions and acute attacks, the old lepromas and those much infiltrated were cured by the formation of a shiny protruding cicatricial process which commenced from the periphery to the centre.

Singular results were obtained by Bigot and Le-Van-Trien in cases treated by this method, Montel and Troung-Van; Que in one case, Dorolle, Ngo-Kuang-Ly, Tran-Van-Tan in four cases and Feron in only one case.

Sice Moreau had good results and Nicolas observed favourable actions on leprosy.

Drolle and Ngo-Kuang-Ly obtained rapid cure of acute polynneuritis and stoppage and regression of the evolution of leprosy in one case.

Berny also found good results in the pain of the leper by administering it orally.

Merken observed the acuteness of pain and frequency of cramps diminished soon after the second or third injection. The action on the evolution of leprosy was rapid but not lasting.

Lepin & Markianos had at the beginning encouraging results with softening and reduction of the nodules with a rapid ulceration and cicatrization as well as a fall of temperature; but unhappily there was no further marked improvement with the continuation of the treatment. In limited cutaneous lesions and in the nervous and mixed forms they did not have appreciable results.

Galovin had on the whole good results in the ulcers.

Berny and Gippet find that methylene blue in 1% solution has a neat cicatrizing action when applied with a brush on the ulcers.

Braga finds the therapeutic effects of methylene blue administered intra-arterially is not superceded by any other method up till now conceived for the treatment of the ulcers.

The Brazilian conference came to the conclusion that it had a peculiar action over the affected tissues which were impregnated either on account of its affinity with the tissues altered by the bacillary toxins or on account of the modifications of the reticulo-endothelial system which is a proper condition for the fixation of a vital colouring agent like methylene blue. No one boasted its effect as did Montel, but they found it was a remedy not to be despised in the treatment of leprosy and the delicate problems concerning biopathology and visceral relations with the diverse associated remedies should be patiently investigated.

However Souza Dubois, Westerlink and J. Degoth who treated 15 negros, Occhino and Kernakarep who treated 22 did not obtain any results.

The report of the medical service of Soudan says that the methylene blue was a disappointment in the treatment of advanced cases of leprosy.

Fernandez and Schujman did not observe any of the immediate results shown by Montel. They did not obtain any beneficial effects in the chronic lesions, in the nodules, in the tubercles and the infiltrations did not suffer any alternation as well as oedemas and the ulcers. In one case in which there was orchitis and neuritis the injections of methylene blue instead of diminishing the pain aggravated it to such an extent that the authors were forced to give morphine and suspend treatment. There was no bacteriological modification and it appeared to them the drug acted rather prejudicially as regards the general conditions. In the case of leprotic reaction the effect was frankly harmful in four cases and inefficacious in three.

De Mello says that in his hands methylene blue had no such results as boasted by Montel.

The frequent phenomena of intolerance and the inferiority of therapeutic results and the aversion of patients for this method of treatment which leaves them in a disagreeable condition made Bertaccini to advise against the use of methylene blue in the therapeutics of leprosy.

Finally Montel himself says the failure of many authors is due to small doses, and thinks he has introduced a "treatment" and not a process of cure as his opponents assert. Soon after the injections all cutaneous lesions take blue colour; this is a fact observed uniformly by all authors except a few like Occhino and Kernakamp who experimented on patients of black skin.

We have not observed any immediate favourable result with small initial dose. However in two cases, one an adult and the other a child where we could give high doses, we have seen the big discromic patches to disappear definitely; one nodular case of a child did not have any benefit even with high doses but on the contrary the constant attacks of fever left it in a very declined state.

We used methylene blue on persons of many Indians of different colour of skin, from fair to dark. The injections did not colour those with dark complexion. In the patients who had dark skin and coloured lesions, the lesions turned black nearing the colour of normal skin. Such patients enthusiastic with the treatment, think that the rapid colouring of the lesions correspond to its rapid cure. They were filled with courage at the beginning, but after some time when they found it was a passing effect, they got very disappointed and would not continue the treatment.

The patients, specially women, who had a fair skin, were ashamed of the dark colouring of the patches which brought them near to other persons supposed to be of inferior caste, on account of which they also gave up the treatment.

Therefore I observed the colouring of lesions by methylene blue brought into my patients more objections to the treatment than advantages.

It is worth while to take advantage of the fact of the momentary courage which methylene blue gives to certain persons.

[Note:—The author gives 32 references to this article, but we have regretfully to omit the same owing to exigencies of space. Besides they are references to which our readers may not have easy access.—Ed]

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'Tabloid' Hexobarbitone, gr. 4, is given orally to produce light hypnosis. It is issued in bottles of 25, 100 and 500.

## Historical Survey of Ray Therapy

• Dr. P. M. Mehta, M.D., M.S., F.C.P.S., Director,  
Solarium, Jamnagar

Ray therapy means the treatment of diseases by solar radiations or by radiations produced from artificial sources. The latter have come into being during the last few decades. The solar rays have been used by men since time immemorial. Even animals have been observed to expose their injuries to the rays of the sun. The men of the stone age selected their cave dwellings for their favourable situation for the admission of sunlight. In all ancient religions the worship of the sun plays an important part. The Egyptians worshipped 'Ra' which means the sun. Their kings were called 'Pha-ra-oh', i.e., the deputies of the sun god. From an ancient Egyptian picture it appears that Egyptians took sun-baths. Heliotherapy as such was first practised by the Greeks. From them the practice was borrowed by the Romans who built sun-houses which they called Solaria. These were generally apartments made in dwelling houses for the purpose of sun-baths. Such solaria were also attached to the halls of the sick in the hospitals.

In India the therapeutic use of solar radiations seems to have been carried further than mere exposure to sunlight in the interests of the general health. There are clear references to cures of leprosy and skin diseases by exposure to the sun (vide Mayur's *Surra Shatak and Samb Puran*). In India they seem to have attained a more scientific understanding of solar radiations. The mythological picture of the sun-god as riding in a one wheeled chariot with seven horses each of a different colour of the rainbow controlled by reins of live serpents by a charioteer who has no hands and legs is more than a mere flight of imagination. It seems to have been imagined by those who had a substratum of facts to go upon. The seven coloured horses are the seven rays of the visible spectrum. The rainbow has been observed since the world began but this conception is perhaps the first to connect its colours with the sun. The reins of live serpents are highly suggestive of the serpentine or wavy motion of the radiations through space. The sorry figure of a limbless charioteer is admirably conceived to suggest that he cannot properly control the powerful steeds yoked to the chariot. Their strides are unequal which suggest the unequal wavelengths of the radiations. Their speed however cannot vary as they are bound to the same yoke. This suggests the uniform velocity of each radiation in spite of their varying wave-lengths.

But we have no grounds to conclude that heliotherapy was systematically practised in India. We may trace the history of ray therapy to ancient beliefs and practices but strictly speaking they have no bearing on the subject. The present-day ray therapy cannot in any sense be said to have developed from them.

In 1666, Newton by discovery of the spectrum sowed the seed of ray therapy. He showed that by passing a beam of light through a prism it could be decomposed into its component parts. The white light of the sun he thus found to be composed of seven colours, viz., red, orange, yellow, green, blue, indigo and violet. These are the seven colours of the rainbow which is nothing but the solar spectrum formed on the sky by the sun's rays passing obliquely through a raining cloud. The seed sown by Newton was to bear fruit two centuries later when by means of the spectro-scope invisible radiations which are mainly used in ray therapy were discovered.

During the two hundred years that followed Newton's discovery the science of light and electricity made great progress. In 1678, Christian Huygens formulated the wave theory of light and in 1733 Dufay discovered that there were two kinds of electricity. The former led to a better understanding of radiations and the latter of electricity, both factors of prime importance to ray therapy.

Towards the end of the eighteenth century, we find instances of sunlight treatment being given with an apparently scientific approach to the subject. In 1774, Faure treated chronic ulcers with sunlight and many others after him did the same using lenses to focus sunlight on the affected parts. But this vogue was short-lived. The progress of science generally, of physics in particular, was preparing the ground for the advent of modern ray therapy.

In 1800, Sir William Herschel while experimenting to know the temperature of each of the visible colour rays of the spectrum noticed that the thermometer continued to rise even when it was placed beyond the end of the spectrum. This showed that there were radiations which caused heat though they were not visible. Being just below the red rays Herschel named them as infra red.

Similarly in 1801, Ritter and Wollaston working independently noticed that beyond the violet end of the spectrum there were invisible radiations which caused—chemical reaction in silver chloride which turned black under them. Being adjacent to the violet rays in the spectrum they were called ultra violet. These two, infra red and ultra violet invisible rays, are the most

important from the therapeutic point of view. In 1802, Sir Humphry Davy discovered the electric arc which was to play ninety years later an important part in artificial ray therapy.

Ampere, in 1835, contributed to the clarification of the existing conceptions about radiant energy and showed that heat and light were analogous energies. In 1865, Maxwell confirmed his theories and proved that all electro-magnetic waves travelled at identical speed and suggested that the movement of an electric charge causes emission of electro magnetic waves which Hertz proved practically in 1886 by producing Hertzian waves. In 1854, Bunsen perfected the spectro-scope. In 1855 Charcot proved that skin erythema was due to bio-chemical reaction of ultra violet rays which existed in light.

The bactericidal properties of ultra violet rays were discovered by Downes and Blunt in 1877. In 1885, Michelson verified and confirmed the velocity of light to be 186326 miles per second which was previously worked out by Foucault and Fizeau. In 1886, Henrich Hertz discovered by means of his oscillator that electro-magnetic waves can be produced in ether with all the fundamental properties of light waves but differing from them in wavelength, frequency and penetrating power. The radiation which he discovered are called after him Hertzian waves which are used in wireless transmission. In 1877, Kellogg began the use of incandescent lamps in the treatment of diseases.

The physiological action of radiations was casually observed by some physicians and surgeons here and there but it was Finsen (1893) who first devoted himself to a life-long study of the subject. He contrived an artificial source of rays for local treatment of lupus. He established the first ray therapy institute of the world. He showed that lupus was curable by ultra violet radiations. He contributed much to the development of method and technique by the use of compressors, concentrators and filters. His institute at Copenhagen is still one of the leading ray therapy centres of the world. He was awarded the Nobel prize for this work.

In 1895, W.C. Rontgen discovered the X-rays which have a high penetrating power and shorter wavelengths than ultra violet rays. In 1896, Monsieur and Madame Curie discovered the Gamma rays of Radium with still smaller wavelengths.

A surprising cure by sunlight of a hopeless case of multiple wounds was responsible for making Oscar Bernhard and Rollier, two eminent surgeons of Switzerland, interested in ray therapy. They practised heliotherapy on a large scale and established big clinics. Oscar Bernhard at Samaden and Rollier at Leysin. Rollier directed his efforts

towards fixing a standard for dose in helio therapy, and made a systematised use of sunlight in his clinics in the Swiss Alps. He had much success in the treatment of anæmia, chronic ulcers and surgical tuberculosis, specially tuberculosis of the skin, bones, joints and glands. His extensive work following Finsen's, inspired many scientific investigations and applications of the present century.

In 1901, the Copper-Hewitt mercury arc lamp was perfected.

In 1904, Kromayer was the first to use the water-cooled quartz mercury lamp for local treatment.

In 1908, Sir Henry Gauvain introduced helio therapy at Hayling island at Alton. In the same year Nagleschmidt introduced the mercury arc lamp for general irradiation.

In 1918, Hulschinsky demonstrated the usefulness of ultra violet radiation in rickets.

Tappeiner, Hertz, Passow, Marsucci and Husman have made special study of photosensitiveness of living tissues and of photosensitive substances. Jausion applied this principle to combine light therapy with chemical therapy.

During the last twenty-five years, many new sources of ultra violet, visible and infra red rays have been developed. Dr. Saidman of France brought to bear his knowledge of physics on the subject of ray therapy and co-ordinated all that had gone before him both in artificial and natural ray therapy. He tried to put ray dosimetry on a scientific basis. In 1926, he introduced the skin sensitometric test. In 1929, he designed the most scientific apparatus, "The Solarium" for helio therapy.

There are several individuals and institutions in Europe and America particularly Finsen's Institute in Copenhagen "Institut per Strahlen frschung in Berlin and Institut De Actinologie in Paris carrying on investigations in light therapy from the physical, biological and the therapeutic points of view. An International Committee of Light was established in 1929 to standardise the science and promote its development by giving publicity to research work. It holds annual sessions at important centres. The International Congress of light therapy was first held in 1929 at Paris. Its second session was held in 1932 at Copenhagen and the third at Wiesbaden in 1936.

In India, an Institute of Ray Therapy (Solarium) has been established in Jamnagar since 1934 in which research work is facilitated by the large number of cases treated there. Research work particularly in the treatment of rheumatism, surgical tuberculosis and in skin sensitivity of races in India is being carried out in the Solarium.



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## ERADICATION OF MALARIA

Malaria, if not as old as the human race, is certainly  
as ancient as Sanskrit *Susrut* itself. Even in that old  
epitome of medical experience of the ancient Hindus one  
finds indication of the theory of conveyance of malarial  
germs by special species of mosquitoes.

The downfall of the towering civilisation of the  
ancient Greeks and Romans has been definitely traced  
by scientific historians to the devastating activities of  
malaria. As this disease does not constitute at the  
very onset an immediate danger to human life, like  
other virulent infectious diseases, e.g., Cholera, Small-  
pox, etc., its treatment is generally and habitually  
ignored in the beginning as a result where-of by  
re-infection it eats into the vitality and vigour of the  
individual and makes him invalid. The deplorable  
condition of the people of India, specially of Bengal  
to-day is just due to negligence in this respect in the  
past. From the report of the Director of Public  
Health Department it is found that every province show  
decline in incidence of Malaria except Bengal where  
about three crores of people—that means about half the  
total population—full easy victims to malarial fever and  
no less than fifty per cent of these victims step into the  
grave every year. It, therefore, goes without saying  
that malaria constitutes a major public health problem  
both from the standpoint of mortality and morbidity.

Malaria is prevalent even in temperate zones. It  
would have been more or less world-wide but for the  
fact that extreme cold beyond the temperate zones  
exerts unfavourable influence over the development  
and growth of the mosquito as well as the parasites  
thus making the infection impossible there. As has  
already been said, malaria not only takes a heavy toll  
of human lives but also saps the vitality of those who  
survive the onslaught of this disease and who thereafter  
fall easy victims to other diseases. Those who fortu-  
nately escape death are rendered incapable of any  
strenuous struggle for existence. Being unfit for a proper  
standard of civil life they eke out and drag on a  
miserable existence. It is futile to think of or try for  
the political, educational and economic progress with-  
out solving this serious problem which confronts the  
nation. To make the country rich in every respect the  
first and foremost duty of every social worker should,  
therefore, be to try to eradicate malaria from the  
land.

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in the treatment of malaria, both old and recent statistics  
have shown that it does not safeguard the patient  
against re-infection. **QUINO-HAEMOGEN** which  
besides quinine contains total cinchona alkaloids in  
adequate dosage with adjuvants like iron, arsenic,  
nuxvomica, etc., has given the best therapeutic response  
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helps to regenerate the blood of the patient and thereby  
lessens the chance for re-infection.

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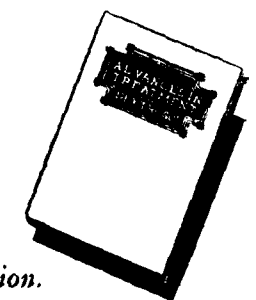
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Now that a large number of I. M. S. and I. M. D. officers are being reverted to the Military Department, a large number of Assistant Surgeons are being appointed temporarily to fill up the vacancies caused by their departure from the civil side. As Sub-Assistant Surgeons are mostly responsible for the professional work of the department, they must be promoted temporarily in the vacancies caused by the promotion of Assistant Surgeons to the rank of Civil Surgeons.

#### ABOLISH THE SUB-ASSISTANT SURGEON RANK

It would add to the efficiency of the Medical Department if all the medical practitioners registered in the Punjab Medical Council are allowed to compete for service. The difference either from academical or practical point of view, between the medical licentiate and the medical graduate, is not so great as to warrant the continuance of different cadres of Medical Service. Even if there be a difference, a competitive examination will settle the matter and the Government will thus have best men both from the Amritsar Medical School and the Medical College, Lahore. In the United Kingdom, both the medical licentiates and the graduates are treated alike by the Government, and we believe, Sir, that time has also come for us to adopt the same system of equal opportunities for all qualified registered medical practitioners. All the medical men who enter the State Medical Service should be designated as Assistant Surgeons, allowing the best of them to be promoted to the higher grade of Civil Surgeons.

#### THE RECENT RETRENCHMENT IN OUR PAY

What we took some thirty years to build up has been smashed in a day without any justification and without any serious consideration as to how this reduced pay would affect the members of the Subordinate Medical Service.

Comparing our salary with that of other subordinate services, you will find that we occupy the lowest status, notwithstanding our educational qualifications and the onerous and risky nature of our duties. Comparing it again with that of the Assistant Surgeons, you will find too wide a gap to justify such a differential treatment as it exists to-day. The Government is not unaware that the Sub-Assistant Surgeons have all along been underpaid and overworked, and have been living in the hope that the authorities will deal with them justly in the fitness of time. Col. Bryson once wrote in the *Indian Medical Gazette* :—

"Efficiency, patience, loyalty, devotion to duty, and a dozen other attributes belong beyond question to the Sub-Assistant Surgeons. The great mistake of mistakes is that he is underrated and undervalued".

It would not be out of place to mention that when in the same cadre a lady Sub-Assistant Surgeon is drawing Rs. 75—5—175, selection grade 200, and an Assistant Surgeon is drawing Rs. 225—15—450 a Civil Sub-Assistant Surgeon is doomed to draw Rs. 55—3—100 selection grades of Rs. 115 and Rs. 130. Is it humanly possible that a fully qualified medical product of a medical school who had been spending about Rs. 60 p.m. as a student could pull on with such low and meagre pay in villages where there is no middle school even and would it be possible for this disheartened medical man to do any professional service to the public. This is the only unfortunate province in India, which is clear from the following comparative table of pay in other provinces, where a Sub-Assistant Surgeon is drawing so low pay and yearly increment.

| Province    | Scale of pay of Male Medical Licentiates                                       | Scale of pay of Female Medical Licentiates                                                                                |
|-------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Bombay      | 99-20-5-160                                                                    | No separate Scale                                                                                                         |
| Assam       | 75-5-105-5-140-5-175                                                           | " " "                                                                                                                     |
| Madras      | 65-7-2-100-8-2-124-9-2-160                                                     | " " "                                                                                                                     |
| N. W. F. P. | 70-4-130 subject to reduction of 15 per cent, who have joined after 16-7-1931. | 75-5-175 plus frontier allowance in cases of Non resident of N. W. F. P.                                                  |
| Bombay      | 60-5-170.                                                                      | 60-7-200 with allowance at Rs. 25 p.m. reducible to Rs. 21. Rs. 14. Rs. 7 when pay reaches 179, 184 and 198 respectively. |
| Punjab      | 55-2-100/115-180                                                               | 75-5-175 selection grade 200.                                                                                             |

The Government would do greatest service to the rural areas if those who are really serving the rural areas are properly encouraged.

I give below a comparative table of surgical work done by Assistant Surgeons and Sub-Assistant Surgeons in some of the important dispensaries of the Punjab in 1938 which will tell its own tale :—

| ASSISTANT SURGEONS                                       |       |
|----------------------------------------------------------|-------|
| S. S. Dr. Harbhajan Singh, P.C.M.S.,                     | 1,271 |
| Dr. Prem Nath, P.C.M.S. (Promoted Sub-Assistant Surgeon) | 2,808 |
| S. B. Dr. Sohan Singh, P.C.M.S.,                         | 2,154 |
| Dr. Sant Singh Rummagaria P.C.M.S.,                      | 1,052 |
| Dr. Raja Ram P.C.M.S., (Promoted Sub-Assistant Surgeon)  | 1,041 |
| Dr. Jamit Singh, P.C.M.S.,                               | 666   |
| SUB-ASSISTANT SURGEONS                                   |       |
| Dr. Manohar Lal Kapur                                    | 3,021 |
| Dr. Hukam Chand Khosla                                   | 2,229 |
| Dr. Aoor Singh Chawla                                    | 2,097 |
| Dr. Muhammad Amin                                        | 1,404 |
| Dr. Muhammad Ismail                                      | 1,372 |
| Dr. Bala Kishen                                          | 1,307 |
| Dr. Prithi Chand Beri                                    | 1,252 |
| Dr. Moti Singh                                           | 882   |
| Dr. Vir Bhan Chawla                                      | 832   |
| Dr. Nassar Ullah Khan                                    | 742   |

#### EYE CENTRES IN THE PUNJAB

It would not be out of place if I give an extract from the Civil and Military Gazette dated 19th April, 1940 regarding the Eye Centres in the Punjab.

"The Medical Department of the Punjab Government has embarked on a policy of reorganizing the so-called Eye Centres which have grown up in various hospitals under the control of the department."

#### THE PUNJAB LEAD

"The present position is that the Punjab leads all other provinces of India in respect of the number of surgical operations performed for the restoration of vision to the blind particularly by the removal of cataract. Patients in their thousands flock to the Eye Centres in various hospitals during the so-called Eye seasons."

#### TRANSFERS

"It will be noticed that most of these centres are situated in out of the way places, difficult of access owing to difficulties of transport. Last year the experiment was tried of transferring an Eye Centre from a hospital at a Tehsil town to the hospital at the District Headquarters in Karnal. The transfer, of course, involved the transfer of the Medical Officer concerned. The hospital in Karnal was large and well equipped and the experiment of transfer proved an unqualified success. This had led to the present plan of moving all 'Eye Centres' from obscure mofussil towns to the nearest District Headquarters."

Now when the Government has recognized the service of Sub-Assistant Surgeons and created an Eye Centre at Karnal

which is being followed by other Eye Centres at other district headquarters I cannot help suggesting to the Government that these Eye Centres are sure to collapse if the Government do not attend to the following points.

1. That a Sub-Assistant Surgeon of surgical repute who is selected for charge of an Eye Centre shall be deprived of all other private practice including General, Surgical, Medical, Medicolegal and other private professional practice.

2. That he must be compensated for this loss and designated as Ophthalmic Surgeon.

3. This should be declared a special post under the Government and the Ophthalmic Surgeon be placed in the P.C.M.S. cadre with a minimum allowance of Rs. 100 p.m.

The public is greatly indebted to the Hon'ble Mian Abdul Haye, for starting an Eye Centre at Karnal and selecting Dr. Manohar Lal Kapur a Sub-Assistant Surgeon of provincial repute for its charge. In the interest of the institution he should be at once placed in the P.C.M.S. cadre with a minimum allowance of Rs. 100 p.m. as compensation for the loss of his enviable general private practice. In my personal opinion, if the Medical Officer in charge of an Eye Centre is adequately encouraged and treated as he deserves at a district headquarters the institution is sure to become self supporting in no time. It is a great pity that a meagre allowance of Rs. 50 p.m. promised by the Government for the Karnal Eye Centre has not been sanctioned up till now.

#### RURAL MEDICAL OFFICER IN THE PUNJAB

The rural Medical Officer has at present to serve many masters: the District Board, the Civil Surgeon and the District Medical Officer of Health. He has to do every kind of work: health propaganda, health work and dispensary medical and surgical relief. The too comprehensive nature of the work that is allotted to him will by itself mar his efficiency either as a rural health officer or as a rural medical officer if he is made to do both the duties at one and the same time. In the Punjab, the anxiety of the Government to improve rural sanitation and to carry medical relief right into the villages has led them to transfer a few rural dispensaries to the control of the Public Health Department as an experimental measure. The arrangement in such dispensaries is that the rural medical officer should tour the adjacent villages in the afternoon for at least five hours on every alternate day and do such work as inspection of school boys, health lectures and infinite other sundry public health work which is usually done in every country by the Sanitary Inspector, in addition to medical aid at the villagers' own homes. I am not for a moment suggesting that this kind of work is unnecessary, and the doctors should not be made to do it. But I do feel, however, that to take away the rural medical officer from his dispensary for an aggregate of 15 days or more in a month for extra duties far distant from his village, and putting the dispensary under the charge of a medically unqualified person like a dispenser is bound to impair the usefulness, efficiency and popularity of any rural dispensary intended for medical relief. Emergent and serious cases that come to the dispensary during the absence of the medical officer have necessarily to be tackled by the dispenser, often with disastrous results. This is altogether unfair to the residents living within the dispensary area, who expect qualified aid at all times, as well as to the indoor patients, not to say of its also being ethically wrong.

The rural dispensary would never make an impression on our people if it does not serve them, or serves them badly, in such medical or surgical emergencies.

My suggestions are mainly two :—

1. Respect the personality of the rural medical and health officer by giving him reasonable remuneration and reasonable burden of duties.

2. Separate the rural health work from rural medical work instead of the present welter of multiple duties and multiple masters, and of foisting them on the slender shoulders of the poor rural medical officer. There is no use grinding him to dust in the name of rural public health and medical relief. This has been

in my opinion, the fundamental cause of the very tardy success of subsidized and other schemes of rural medical relief in all the provinces where they have been introduced.

Ladies and gentlemen: I think I have tired your patience by trying to bring before you so many points with which we are confronted. I do not know whether I have fulfilled your expectations as our grievances are of such a varied nature that they need separate and elaborate treatment. If I have left out any point, believe me, it is not due to lack of knowledge but to spare you from a further lengthy address.

I do not like to stand any longer between you and the future proceedings of this conference and thank you again for the great honour you have done me by calling upon me to preside over this session and I wish that your deliberations be crowned with the desired success.

In the end, I sincerely thank the Hon'ble Mian Abdul Haye, Education Minister to the Punjab Government, who has so very kindly, at great personal sacrifice, taken the trouble of coming to this out of the way place to open our Conference.

#### Welcome Address

BY

Dr. JAI GOPAL

Brother delegates, Ladies & Gentlemen,

On behalf of the Reception Committee of the 16th Provincial Conference of the All India Medical Licentiates' Association, I extend to you a most hearty welcome to this small town of Okara. We of this town feel proud of the fact that it is for the first time in the history of our Association, that the annual session is being held in a place outside the District Headquarters.

The Reception Committee is fully cognisant of its shortcomings and it is hoped that you will kindly forgive us if our arrangements fall short of your expectations to which you are accustomed when invited to big cities. If we are unable to offer a comfortable stay to the delegates, many of whom have travelled long distances at great personal inconvenience and monetary loss, to grace this conference by their presence in response to our invitation, we hoped to be judged by the devotion and zeal of the Reception Committee in inviting the conference here on an express demand by the General Secretary.

#### HISTORY OF ASSOCIATION

The service to which the licentiates have the honour to belong was originally created in the year 1822 with the object of serving the military medical needs of the East India Company. Thus we are the fore-runners of Allopathic system in this country and we have contributed in no small measure to stabilise and popularise modern system of scientific medicine in this country. In spite of this when reforms were introduced and the Crown took over the Government of India in the year 1858, and colleges with University Medical Faculties were established, this dual system of education was created by transferring the Medical Schools to the custody of the Provincial Governments for imparting medical education to suit the provincial needs. This compartmentalism in education eventually led to the adoption of a triple type of medical service and complications in the medical statutes of the country which is the root cause of the present resentment and disaffection in the major part of the medical profession in this country. In order to safeguard the interests of licentiates this Association was formed about 37 years ago and has for many years past been urging to obtain statutory equality for the licentiates, firstly by raising the standard of education and secondly, by the abolition of compartmentalism in service.

In recognition of our claim for better education, the Government of India convened a conference in November, 1938 and it recommended the introduction of one uniform minimum standard of medical education throughout this

country to satisfy the requirements laid down by the Medical Council of India. It also required that the standard of equipment in schools, essential for training should be raised to the standard required for recognition by the aforesaid council. Although it is now over two years that these recommendations were passed, no province has taken them up seriously except Madras which has abolished all Medical Schools and raised them to college standard, and U. P. which has also raised its standard in the Agra Medical School. In our province reforms have been introduced by raising the course of studies in the Amritsar Medical School by the untiring efforts of its worthy Principal Major S. M. K. Malik, I.M.S. We are also grateful to Hon'ble Mian Abdul Hayee Minister of Education Punjab, for introducing I. M. S. Course in this school. We hope, pray and trust that the course of study will be raised to the College standard and the question of its affiliation to the University will receive his sympathetic consideration at an early date. The conditions in other provinces, I am sorry to say, still continue as before, where medical schools of inferior type of education are flourishing like mushrooms. In order to end this historical wrong and dual system of education, Dr. B. C. Roy in his presidential address at a meeting of the Medical Council of India on 21-3-41 referred to this proposal and the council has agreed to recommend to Government of India to alter the Indian Medical Act of 1933 in order to provide an All-India Medical Register, in which all those members of the profession whose names are borne in the provincial register would be included. In order to ensure a uniform standard of Medical Education, Registrable by the Indian Medical Council, the council has recommended that the Government of India should ask the Provincial Governments either to abolish Medical Schools for the licentiates or to raise them to the University standard. In order to end the stigma of inferiority assigned to the licentiates primarily in the education, secondly in our status in service and thirdly in debarring us from registration, we are here assembled to-day to represent to the popular Government to adopt measures for the abolition of compartmentalism in medical education, and to urge for the equality of status for entry in Government service and promotion to higher appointments.

#### PROMOTION TO ASSISTANT SURGEON CADRE

The number of seats reserved in the Assistant Surgeon cadre for promotion from amongst the Sub-Assistant Surgeons is now 9, which is hardly one and half per cent of our cadre. The conditions governing this promotion are disappointing and against this the Association has been representing year after year. No such condition exists either in our department when Assistant Surgeons are promoted to the Civil Surgeon's rank or in any other department of the Government. The meritorious and approved service extending over a reasonable period is the sole test by which subordinates in any department of Government are promoted to the higher rank. Why this wholesome principle should be denied to the licentiates is hard to conceive. The demands of justice and equity require, that the Sub-Assistant Surgeons selected by virtue of professional skill, and exceptional attainments and those who have served honestly and conscientiously and whose services are appreciated by the departmental officers, should not be superseded by juniors in promotion to the higher cadre, merely for want of M. S. M. F. qualification. Although this condition has recently been waived by the Government yet not a single Sub-Assistant Surgeon has been promoted by virtue of merit alone. In this connection we pray that 5 per cent of our total strength be allotted promotion to the Surgeons' rank, out of which half the seats be allotted to those with M.S.M.F. or other higher qualifications and the other half be reserved for promotion by merit and approved service.

We suggest that the leave reserve in the Assistant Surgeon's cadre be abolished and the Sub-Assistant Surgeons of 20 years approved service be given the chance,

after a short training in post mortem examination work, to fill the temporary vacancies occurring in the higher cadre.

#### OUR PAY

The reduced scale of pay introduced recently amounts to about 20 per cent retrenchment on the old scale of pay. There was already a vast difference in the scale of pay of subordinate and provincial service, and the licentiates who are qualified medical men and whose practical work in hospitals and dispensaries is equally good if not better than graduates were representing to get this abnormal difference getting their pay raised to a level commensurate with their status in profession, the reduced scale of pay was thrust upon them, thus creating a still wider gulf in the already inequitable difference in the scale of pay of these services. The of the provincial service was left untouched, whereas the licentiates who rendered useful service to the country and therefore suggest that their pay were retrenched. We achieved after a long and continued struggle of many years be introduced again.

#### RURAL MEDICAL SERVICE

The decentralization of the rural medical relief by entrusting it to the Public Health Department in the five districts is not in the interest of public, besides being the source of discontent among the Rural Medical Officers, who suffer serious disabilities owing to party politics and are subjected to arbitrary cuts in pay, apart from being denied in some cases, the privileges of private practice. In order to remove these causes of disaffection amongst the Rural Medical Officers and to keep the service contented it is humbly suggested that the ultimate control of the Rural Medical Relief be transferred to the Inspector General of Civil Hospitals, Punjab, particularly in view of the fact that the entire cost of maintenance of these dispensaries is borne by the Government and secondly because the Health Department is primarily concerned in the maintenance of health and prevention of sickness, whereas these dispensaries afford medical relief during sickness and should therefore be under the control of Medical Department.

#### WAR AND MEDICAL LICENTIATES

We are meeting at an extraordinary time when war is looming large in Europe and our Benign Government is hard-pressed both for men and money. The extension of arena of war to the middle East and lastly at our door is very likely in the near future. The Medical Licentiates have contributed liberally to the War Fund and men below the service of ten years by virtue of their bond have reverted to Military. Besides this many more have joined voluntarily but we are constrained to say that the service conditions are not encouraging and the emoluments not commensurate with the hazardous nature of duty as well as with the position and prestige of the licentiates. The rules regarding invalid pension and pension to the dependants in case of death require sympathetic decision if the service is to be attractive.

This Association moreover learns with regret that Indian I. M. D. Officers are not allowed to treat even ordinary cases. These officers when in charge of Civil Medical Institutions are considered fit to treat civil population, why should they be debarred from treating Indian Sepoys.

It is further suggested that when Assistant Surgeons are promoted temporarily to fill up the vacancies caused by the reversion of the I. M. S. Civil Surgeons to Military, the senior Sub-Assistant Surgeons be promoted to fill up the vacant seats. Selected Sub-Assistant Surgeons who have distinguished themselves and are surgeons and physicians of extraordinary repute should be given the King's Commission. It is further suggested that suitable hospitals in the province be earmarked for treating wounded when

received and medical licentiates in charge of those dispensaries would gladly exert themselves to the best of their capacity in treating them during this period of exigency.

#### INDIGENOUS SYSTEM OF MEDICINE

Indigenous medicines and medical plants renowned since ancient times to possess potential pharmacological properties should be tested and tried. For this purpose special Research Departments be established in all the teaching institutions and if these drugs are found really useful be incorporated in a special Indian pharmacopoeia and thus full advantage be taken of their therapeutic properties. The step proposed would ultimately effect economy and will obviate the necessity of importing foreign products which is rather difficult in these days.

#### PUNJAB MEDICAL COUNCIL

The step-motherly treatment meted out to the licentiates is their meagre representation on the Punjab Medical Council. The Council whose very existence depends upon the contribution of the medical licentiates and who in number from 80 per cent of the total strength of the profession, should allot them only a single seat as compared with five seats to the graduates in a council of 16 means differential treatment to the majority community. It is earnestly hoped that the Government will see the justification of our claim for higher representation and will allot at least 4 seats to the medical licentiates in the Council.

#### CONCLUDING REMARKS

I have dwelt at some length on some of the serious problems affecting the licentiates, and I am aware of the fact that I have not fulfilled your expectations in touching upon all of your grievances which are many and are of various nature and require elaborate discussion. It is only with a view to avoid a lengthy address and not for any lack of sympathy on my part that I have omitted their detailed description. I therefore request you not to feel disappointed because in our deliberations at our subject committee meetings we will deal with all these points to our heart's satisfaction. I also appeal to you that you will kindly sink your differences and try to appreciate the view point of your adversary if there is any difference of opinion on any point. We are brothers, we suffer from the same ills and we should try to solve our problems with unity of purpose, worthy of the noble profession to which we have the honour to belong, and I can assure you that our Association with its glorious past achievements, will again be in a position to get the wrongs righted.

[Other proceedings and resolutions, having been received late, will be published in our next issue. Ed.]

#### Diplomate in Medicine and Surgery—Madras.

This is the caption of a new diploma conferred by the Government of Madras on those students of the Stanley Medical School who had successfully undergone a five years' course. Early last year, some of the student leaders approached the Editor of the journal to help them in the acquisition of a new qualifying diploma which would indicate their more exhaustive course of studies than was the case in respect of licentiates with four years' course. He advised them that no new distinctive diploma which would not confer on them the same status as the M. B. B. S. could fulfil their objectives, and that, on the other hand, it would, by creating a third wheel in the coach, cause confusion in the minds of the people and affect the consolidation of the profession as conceived and worked by the All-India Medical Licentiates' Association and the Indian Medical Association. Thus dissatisfied, they turned towards their principal for help who led a deputation to the Surgeon-General with the result that a new diploma, the D. M. S., was instituted and conferred by the Government of Madras on this category of medical licentiates, presumably under section 3 of the Indian Medical Degrees Act (1916).

Usually the Government of Madras used to consult Medical Associations in this province on matters of medico-political and medico-social interests. But in this case, nothing of this kind was done, nor, according to our best information, even the Madras Medical Council was consulted. We think there was no need for such a haste in a matter that but affects a handful of medical men in this province.

A summary of discussion and the text of the memorandum on this subject, presented to the Surgeon-General by a deputation elected by all the branches of the A. I. M. L. A., Madras Province, are published below. We trust that the Government would revise their decision in view of the unanimous protests by all Medical Associations and some prominent medical men. There are, in our view, only three alternatives: (1) The new D. M. S. should carry the same material status and opportunities as those now enjoyed by the M. B. B. S. Or, (2) if this is not possible and if still the Government think that the D. M. S. should be retained, it is but reasonable that it should be conferred on all the licentiates of Stanley Medical School or (3) should this even be found inexpedient, the new diploma should be withdrawn and the profession thus saved from further internal disparities. Ed.]

DR. D. V. VENKAPPA, PROVINCIAL SECRETARY, MADRAS, WRITES UNDER DATE 20-4-41

A deputation representative of the Branches of the A.I.M.L.A. Association waited upon Col. H. STOTT, O.B.E., K.H.S. Surgeon-General with the Government of Madras at his Office on Friday the 18th April 1941 at 12.30 Noon precisely. The members of the Deputation were:—

Dr. U. L. Narayan Rao, Provincial President, Madras,  
Dr. Syed Niamatulla, President, Madras Branch,  
Dr. P. A. S. Raghavan, Trichi  
Dr. C. Nathamuni, Secretary, Vellore branch  
Dr. K. Rama Rao, Madras  
Dr. D. V. Venkappa Provincial Secretary, Madras.

The Provincial Secretary introduced all the members of the Deputation to the Surgeon-General and was the spokesman. Before presenting the Memorandum of the Association he made some preliminary observations by stating that the entire medical profession in the Province was unanimous in its verdict that the new D. M. S. Diploma awarded to the Licentiates should have a retrospective effect by conferring the same upon the existing licentiates in all fairness and justice, especially when the class is to become extinct. The same opinion was expressed by all the medical associations in the Province, District Medical Associations, Branches of the Indian Medical Association and other independent associations. He then gave a list of the existing branches of the A.I.M.L.A. in this Province, about a dozen in number, and said that nearly one fifth of the strength of medical men in this Province are members of this Association, that is, between 800 to 1000 members out of a total of about 5000. He then presented the Memorandum before the Surgeon-General after which the members took part in the discussion.

Dr. Syed Niamatulla stressed the point that when one Department of Government is abolished and replaced by another progressive one the privileges offered to the latter must be extended to the former and instanced the case of the Indian Medical Registration Act where all and sundry of the Indigenous medical practitioners whether qualified or not were included in the Register. Moreover, he said that it would cause differentiation and discontent in the rank and file of Service men who after their hard and honest service of over 20 years should be dubbed inferior to the five-year course men by virtue of having had only an extra year course. It would be creating another caste in the profession when the Association has been striving and has striven to get rid of class distinction by the abolition of the I.M.P. course.

Dr. P. A. S. Raghavan next spoke about the unanimity of the opinion expressed by all the medical associations in the Southern districts and gave out their views that the new diploma "D.M.S." should be conferred on all as otherwise it produces a cleavage in the profession by adding another caste.

Dr. C. Nathamuni said that the L.M.P.'s who underwent five years' course joined the medical school as such and never expected the D.M.S. diploma would be granted later. He further remarked that when the three years' licentiate course was increased to four years the name Hospital Assistant which was given to the former was changed to L. M. P. for all and hence it is desirable that the D.M.S. should be similarly extended to all the Licentiates.

Dr. U. L. Narayan Rau expressed that he agreed with the views of all the deputationists and appealed to the Surgeon-General that the D.M.S. should be conferred on all irrespective of whether the L.M.P.'s underwent 4 or 5 years' course.

Dr. K. Rama Rao instanced the case of the L.R.C.P. & M.R.C.S. having had a course originally for 4 years and then increased it to five years and hence they also should be treated alike. He further pointed out that the nomenclature D.M.S. was no new innovation and that the Second Annual Conference of the Association held in the year 1907 at Bombay under the presidency of Surgeon-General Stevenson passed a resolution to the effect that the D.M.S. diploma should be awarded them.

The Surgeon-General listened to all the members of the Deputation very patiently and remarked "There we are, there we are." He appreciated all the points brought before him and heartily sympathised with every one of them. The arguments held out by each and every speaker were very good indeed but there was a difference between his sympathy and administrative affairs. However much he sympathised with them there are administrative difficulties which he could not overcome. The five-year Licentiates agitated for a new diploma and a Deputation headed by Dr. Dinker Rao presented their case before previous Surgeon-General who also consulted some of the older L.M.P.'s as to their opinion. It is only on the strength of the representation of this Deputation and the assurance that there would be no opposition by the older L.M.P.'s, the new diploma was conferred. There was no use of touching about a settled and an agreed fact.

Dr. Venkappa intervened and said that he was not aware so far of any older L.M.P.'s being consulted as he himself was one such. Neither was the Association in the know of it. It was purely an agitation got up by the five-year L.M.P.'s and nothing was known to them as otherwise they would have given their considered views.

The Surgeon-General put before them the difficulty of the situation and asked them if they wished to withdraw the diploma or treat all of them as L.M.P.'s in case of non extension of the D.M.S. diploma to the existing Licentiates.

Dr. Venkappa appealed to the Surgeon-General in as much as one who made a public pronouncement that he is the protector of medical men in whatever sphere they were and that the entire consideration lay in his hands as they had come there with the ostensible object of placing their views impartially before him. It was up to him to move the Government to take the desirable step which will serve as a landmark in the history of his administration. Every one of the Deputationists echoed the same feelings and appealed to the Surgeon-General for his generous consideration and sympathy and impressed on him that they had done only their duty in placing their frank and considered views before him whilst at the same time feeling grateful and thankful for whatever recognition the five year L.M.P.'s have received at his hands.

#### TEXT OF THE MEMORANDUM

We, the members of the constituent branches of the All India Medical Licentiates' Association, Madras Province, beg to submit that, while we have learnt with much satisfaction and approval that the Surgeon-General with the Government of Madras has recommended the diploma of D.M.S. to be conferred on the medical licentiates who had undergone 5 years' course, the conferment of such a diploma should be extended to all the medical licentiates, hitherto qualified as the L.M.P.'s from the medical schools of this Province.

The idea of designating the successful alumni of medical schools as "D.M.S." really originated from our Association, and was formally proposed to the Government of India in its second Conference held at Bombay on the 12th January 1907<sup>1</sup>.

When the Government of India instituted the diploma of L.M.P. as per its notification No. 1100-1106 dated the 6th November 1911<sup>2</sup>, it was decided then to give retrospective effect to the same, irrespective of the fact whether one has undergone 3 or 4 years' course.

Likewise, we submit that any improvement over the existing diploma should be such as would include the whole class of licentiates within the sphere of such reform.

There are, according to our view, many reasons why the D.M.S. should be conferred on all the medical licentiates:—

(1) It is an essential statutory principle that when there is an integration from the lower to a higher standard of education, the benefits that may be conferred on recipients of the latter should also be conferred on the former.

(2) When the L.M.P. standard was abolished and the subordinate medical cadre was closed for future entrants, our Association submitted a memorandum to the Congress Ministry of Health, to allow the licentiates to compete for provincial Medical Service and to request all statutory bodies not to make any difference between Registered Medical Practitioners.

(3) It may be within the knowledge of the Government that the medical licentiates have, as a whole, never been found wanting in any work they are deputed. As such, any good reform should be made applicable to all existing licentiates, instead of confining it to a small group among them.

(4) Nearly 500 Sub-Assistant Surgeons in the subordinate medical service would feel their faithful service unrequited if the new diploma is not conferred on them also.

We, therefore, respectfully appeal to the Government to confer the D.M.S. diploma on all the Medical licentiates of this Province and to see that all branches of medical and Public Health Service are open to all registered medical practitioners, be they degree-holders or diplomates. This, we submit, will be doing bare justice to a class of medical practitioners whose services are appreciated both by the Government and the Public.

<sup>1</sup> *History of Medical Licentiates*, by Dr. A. Viswanathan, (1937) Page 55.

<sup>2</sup> *Ibid*, page 57. (Book enclosed).

### A Deputation to the Inspector General of Civil Hospitals, U. P.

#### FULL TEXT OF THE MEMORANDUM

We the representatives of the U.P. Branch of the All India Medical Licentiates' Association beg to thank you for so kindly accepting our request to represent to you personally some of our pressing needs and service grievances.

**Reorganisation of Agra Medical School:** We are specially thankful to you that our long-cherished hope, the raising of the standard of Medical education at the Agra Medical School from four to five years and in conformity with that laid down by the British and Indian Medical Councils and also its affiliation to the Agra University, has been fulfilled during your regime as Adviser and Head of the Medical Department of these Provinces. As the present change is the result of the untiring efforts of the alumni of the Agra Medical School after being blessed, of course, by your distinguished predecessors and officers of your service, your own good self and our Government it is but our natural desire that the interests of

JUNE, 1941]

Agra Licentiates should be safeguarded by allowing them to appear in the Final M.B.B.S. examination after undergoing a short course of training which may specially be provided for them. This will not only encourage and benefit them, but will also benefit the general public through their improved knowledge and technique; because after all the medical profession does not exist for its own good but for the service and well-being of the suffering millions. In doing so, you will be making the best of the reforms now introduced by utilising the practising physicians and surgeons already trained at the school without waiting for the new generation of Graduates to come out which will take many years before the public would be able to take advantage of the latter's training and experience. It may be submitted that this procedure would also be in keeping with the policy of the General Medical Council of Great Britain, where a medical student has to put only four years study in a medical teaching institution and fifth year as hospital practice before he is allowed to appear for the final examination of British Universities and Conjoint Boards.

In order to achieve these ends and to keep up the link with our old dear alumnate, we greatly need your full support and pray that old students of the Agra Medical School as represented by the U. P. Branch of the All India Medical Licentiates' Association be appointed to all important committees of the University dealing or concerned with medical education including the Senate, Executive Council and Medical Faculty and that the Government be pleased to nominate our representatives by reserving a certain number of seats for them.

**Amendment of the Indian Medical Council Act:** The present position of Indian Medical Licentiates is anomalous because although their medical qualifications are recognised under the Provincial Medical Acts in every province of India, they are not recognised by the Indian Medical Council which implies not recognition by the Government and the Legislature. We, therefore, pray that indignity at home and disgrace abroad, which the Government of our Government be pleased to represent to the Government of India to recognise the existing Licentiates by making necessary amendments in the Indian Medical Council Act, as has also been recommended by a general meeting of the Indian Medical Council itself in October, 1940.

**Medical Personnel for War recruitment:** The Government have been liberal in offering a start of Rs. 150 with King's Commission even to medical graduates coming out raw and fresh from Medical Colleges, when their market value is similar to that from Medical Licentiates and many of them had to join the Provincial subordinate medical service and other local Board Services on a pittance of Rs. 50 to Rs. 70 and fared no better in private practice. On the other hand, the status and emoluments offered to Medical Licentiates of experience are utterly unattractive and even fall far short of the terms offered during the last war of 1914-1918 in spite of the fact that the services rendered by the Licentiates during the last war were very much appreciated by the Government of India. It may be mentioned that during the last war, Licentiates with M.C.P.S. or M.S.M.F. diploma implying five years medical education were offered King's Commission within India. Keeping in view that the present educational standards of Licentiates are more or less equal to those of Medical Graduates and also the fact that their practice will be left unsecured and unprotected during their absence in Military duty, it is desirable that fair and adequate terms are also offered to Licentiates so that there may be no dearth of medical personnel for war recruitment. It is respectfully urged that you will be pleased to recommend to the Local Government and through them to the Government of India to offer better conditions of service to Licentiates, which may be summarised as follows:—

(a) To institute Military Assistant Branch of the Indian Army for the purpose of allotting it to Medical Licentiate recruits under 10 years' service or practice on a graded scale of pay Rs. 240-15-150 leading to the conferment of King's Commission.

(b) To recruit Licentiates of the standing of ten years and above directly to the temporary L.M.S. (Emergency Branch) Cadre with King's Commission in consideration of the experience they have already acquired.

(c) To recruit Licentiates with M.C.P.S. or M.S.M.F., or D.T.M. or other equivalent qualifications directly to the temporary L.M.S. Cadre.

(d) There should be provision of gratuity for all Licentiates whether recruited from amongst private practitioners or already in Civil or Military Sub-Assistant Surgeon cadre. In order to stimulate and encourage recruitment conditions of service of Military S.A.S.'s should also be improved by grant of war allowance and promotion of a certain percentage to King's

Commission like regular V.C.O.'s who are being offered King's Commission.

**Service Grievances:** The following service grievances need your sympathetic consideration with a view to their redress.

**Refresher Course:** The annual refresher course for P.S.M.S. officers was introduced by the Inspector General of Civil Hospitals at the suggestion of our association with a view to brush up the technical skill and practical knowledge of those officers who are isolated in rural areas and thus handicapped from keeping themselves in close touch with the advances in Medical Science. But the way in which this is worked in different districts not only defeats the very object of it but is a source of great inconveniences to officers concerned. It is misused to meet the exigencies of service at the headquarters and not as a refresher course. It is therefore requested that you will be pleased to issue necessary instructions that officers be called to receive these courses in winter season only and at least ten days' notice be sent to an officer and such calls should not be made in connection with the leave of officers at Sadar-Police or Jail hospitals.

**Gazetted Holidays:** Provided the nature of work permits, P.S.M.S. officers may be granted permission by Civil Surgeons to avail of gazetted holidays like their brother officers working in the Public Health Department. A compounder can carry on the routine work as he does when a P.S.M.S. officer goes on casual leave or to give evidence in medico-legal cases.

**Classification of Dispensaries:** Dispensaries may be classified according to the nature of work and the population of the area served by them in three or four classes. This will facilitate the posting of officers to different classes of dispensaries according to their grades or exceptionally good services. It is a genuine grievance of Licentiates P.S.M.S. officers that junior P.S.M.S. graduates are posted to important stations in preference to senior Licentiate P.S.M.S. The graduates who have joined the P.S.M.S. of their own free will should have no preferential claim in P.S.M.S. simply on the ground of their being Medical Graduates.

**School and Hostel allowance:** It is requested that school and hostel allowance be given to a P.S.M.S. officer attached to a Jail hospital as laid down in the Medical Manual.

**Emergency duties:** In District hospitals at Benares and Cawnpore, Medical officers in-charge and in sub-charge should attend to emergency duties on alternate days.

**Medical Officers in Municipal and District Board Dispensaries:** Under the present rules, for punishment or dismissal of the technical staff, i.e., Sanitary Inspectors and Overseers etc. of Municipal or District Boards, a majority of 2/3 of the members is required; while for dealing with medical officers the Chairman of the Board is all in all. It is therefore requested that you will be pleased to advise the Government to include a medical officer under the terms "technical staff" and also that the rules laid down in the Medical Manual be made applicable to District Board Dispensaries.

**Lady Doctors in Dufferin Fund Service:** It is a great hardship that Medical Women placed in sub-charge of Dufferin Hospitals are debarred from private practice for three years in their spare hours on the plea that they may be able to devote their whole and sole attention to their duties. In private practice they have better chances of learning and utilising the spare hours which would otherwise be wasted, hence the restriction is unnecessary and uncalled for and it is hoped you will be pleased to see that it withdrawn.

Women sub-assistant surgeons who have passed the M.S.M.F. examination are promoted to the Assistant surgeon grade. It is requested the good work as in the case of P.S.M.S. officers should be the criterion for such promotions and not the additional qualifications of M.S.M.F.

In view of the fact that lady sub-assistants of the Dufferin hospitals working in the various rural areas cannot keep themselves upto date with the advances in modern surgery and medicine, they should be given a refresher course of at least two months i.e., one month in each ward of the Thomson Hospital Agra before they have to appear for their grade examination.

In the end we beg to thank you again, Sir, for giving us a sympathetic and patient hearing.

We beg to remain,  
Lucknow,  
Dated 8th April 1941.

Sir,  
Your most obedient servants,  
Sd. S. Rahmal Husan K. S.  
,, Panna Lal Sood R.S.  
,, A.D. Bhandari R.S.  
,, Kunj Behari Lal Varma.

## MEDICAL COUNCILS

## U. P.

- The minutes of the last meeting of the United Provinces Medical Council held on 22nd November, 1940, were confirmed.
- Government notifications nos. 289/V-368, 329/V-368 and 329 (2)/V-368, dated the 29th January, 1941 and 26th February, 1941, renominating Lieut. Colonel J. C. Bharucha, M.R.C.S., D.P.H., D.O.M.S., I.M.S., Dr. U.F.M. Morton, M.D., M.R.C.S., D.T.M. & H., W.M.S., and Rai Bahadur Dr. B.N. Vyas, M.B., as members of this Council were read and recorded.
- The audit and inspection note on the accounts of the United Provinces Medical Council for the year 1939-40 with the Registrar's notes of explanations was considered and the Registrar's explanations were accepted. It was approved that the contribution should be in equal proportions, the excess expenditure of Rs. 40-5-0 over the budgeted allotment was sanctioned and it was decided that the Registrar should countersign the stamp register.
- The following resolution, the consideration of which was postponed to this meeting: "This Council recommends to the Government of India that the Indian Medical Council Act, 1933, be amended on the following lines: to provide for a majority of elected members on the Council" was lost.
- Resolved that the name of Dr. Sarveshwar Nath Kaul, M.B., B.S., (Reg. No. 1884), which had been removed from the medical register for want of address be restored to the medical register.
- Resolved that the regrets expressed by the doctors referred to in Medical Council resolution no. 18 (7, 8, 9 and 10) of November, 1940, be accepted. The case against Dr. Shireen G. M. Khan should however pend for another month and be taken up if she notifies her address within this period. If, however, her name is erased for want of address the case may be taken up when she applies for restoration.
- The consideration of letter No. 1659-G, dated the 7th March 1941, from the Inspector General of Civil Hospitals, United Provinces, forwarding a letter from the Medical Council of India, suggesting that necessary steps by enactment or otherwise, be taken to ensure that qualifications granted by institution outside British India which are included in Schedule II to the Indian Medical Council Act alone are recognized by the Provincial Medical Council, was postponed to the next meeting. In the meantime, other medical councils be addressed to find out what they were doing about this. Also the legal position be ascertained.
- The Council was in agreement with the proposal of the All-India Compounders' Associations (viz., that it should be made obligatory on registered medical practitioners to employ only qualified dispensers and dressers) and it was resolved that it shall be enforced when we are in a position to do so. In the meantime Government be requested to provide facilities for the proper training of compounders. A copy of this decision be forwarded to the Compounders' Association.
- The case against Dr. Prayag Narayan Misra, I.S.M.F., (Reg. no. 2815), of Benares was considered and the Council judged him guilty of infamous conduct in a professional respect and decided that his name may be erased from the medical register. Further it was decided that he may be permitted to apply for restoration (with certificates which are necessary for restoration) after a period of one year.
- The case against Dr. Ganesh Ram Mullick, M.B., B.S., (Reg. no. 2717), of Benares was considered and the Council judged him guilty of infamous conduct in a professional respect and decided that his name may be erased from the medical register. Further it was decided that he may be permitted to apply for restoration (with certificates which are necessary for restoration) after a period of one year.
- The report of the Standing Committee, which met on 11th and 12th January, 1941, in connexion with (1) amendments to the report of the Local Self-Government Committee proposed by the President of the District Board Medical Officers' Association, (2) Rai Bahadur Capt. K.N. Goyal's certificate to a firm, which has been published in a newspaper and (3) the proposal that prosecutions under the Indian Medical Degrees Act be published in the newspapers, was considered and their recommendations were accepted.
- The report of the Standing Committee, which met on 10th March, 1941, regarding the advertisement by Dr. P.L. Whig, M.B., M.R.C.P., D.P.H., etc., an applicant for registration, was accepted.
- The consideration of the amendments to the United Provinces Medical Act, and the rules thereunder, formulated by

the Standing Committee and as finally approved by it at its meeting held on 10th March, 1941, was postponed to the next meeting and this subject to be the first item of the agenda.

14. The following resolution was considered and it was resolved that the matter be referred to the Agra University for consideration by its Faculty of Medicine:

"With reference to Medical Department G.O. No. 2291 F-472 39, dated the 4th January, 1941, the attention of the Government be invited to the fact that old students of the Agra Medical School with L.M.P., or other Licentiate qualifications who have been practising their profession for some years, do need refresher courses like medical graduates to keep them up to date in different branches of medicine and surgery in which they are specially interested. Medical graduates and L.M.P.'s have been getting such post-graduate or specialist training side by side in the same institution in India, England and other foreign countries, e.g. I.O. (Madras) D.T.M. (Calcutta), I.M. (Bombay) ZETG (Vienna). It is requested that Government be pleased to reconsider the matter and provide specialist training for Licentiate and Graduates in the Agra Medical College."

15. The following resolution was considered and it was decided that the matter be referred to the Inspector General of Civil Hospitals and the Director of Public Health, United Provinces:

"This Council requests the Inspector General of Civil Hospitals in the United Provinces and the Director of Public Health in the United Provinces to send a copy of their orders regarding the transfers of all medical personnel subordinate to them to the office of this Council so that the Registrar can maintain a correct register at all times."

Proper arrangements should be made for higher and specialized courses similar to post graduate courses for the benefit of the old students.

Medical Department G.O. No. 2291 F-472 39, dated the 4th January, 1941, to the President, Medical Council, United Provinces.

With reference to your letter No. 986, dated April 2, 1940, forwarding a copy of resolution No. 12 passed by the Medical Council at their meeting held on March 18, 1940, I am directed to convey the following orders of Government in the various parts of the resolution:—

Para 1 of the resolution: The preliminary qualifications have already been raised to Intermediate in Science with the Medical group of subjects and the course has been raised to 6 years.

Para 2 (b). A post of Lecturer in Dentistry is being allowed for the Agra Medical College.

Para 2 (b) c. and d. Government are doubtful about the feasibility of these proposals, which cannot therefore be accepted.

Para 3. The Medical Council's arguments against an increase in the rates of the annual tuition and hostel fees do not appear to have any force and Government regret they are unable to accept the suggestion that such fees should be maintained at the old level.

Para 4. It has already been decided that the Agra Medical College will hold its own pre-medical test and such a test was held this year.

Para 5. Government have already decided that the Agra Medical College should be affiliated to the Agra University and are unable to accept the recommendation of the Council.

Para 6 and 8. The matter is under the consideration of Government.

Para 7. It is not clear as to what the Council means by the words, "the old students." If the old students of the Agra Medical School with L.M.P. qualifications are meant then, it is not usual to have graduates and L.M.P.'s getting post-graduate or specialist training side by side in one and the same institution.

## Bengal

1. The Council decided that after 11th February 1941 no medical diploma granted in the Kingdom of Italy should be entered in the Register as a registrable qualification.

2. The Council decided that with effect from 1st April 1941 the fee for registration should be raised from Rs. 15 to Rs. 20.

3. The Council resolved to recommend to Government for an amendment of Section 6 of the Indian Medical Degrees Act, 1916, by insertion of the following words after the words "United Kingdom" in the Section:—

"or that he holds a degree, diploma, license, certificate or other documents issued in contravention of Section 4."

4. The Council decided that the attention of the Government of Bengal be drawn to the recommendations made by them in 1937 for improving the curriculum of the licentiate course on the lines which corresponds very closely to the standard laid down by the Indian Medical Council.

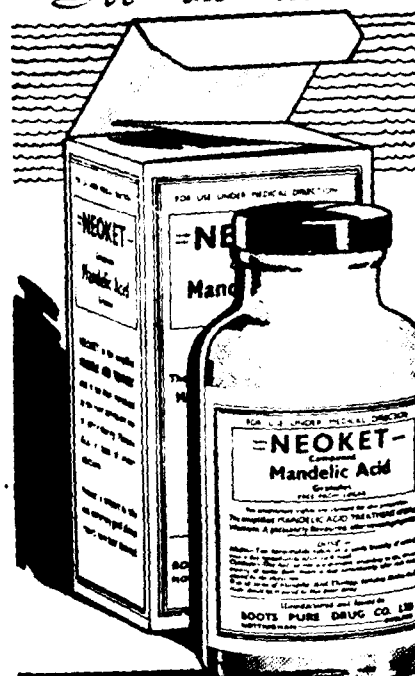
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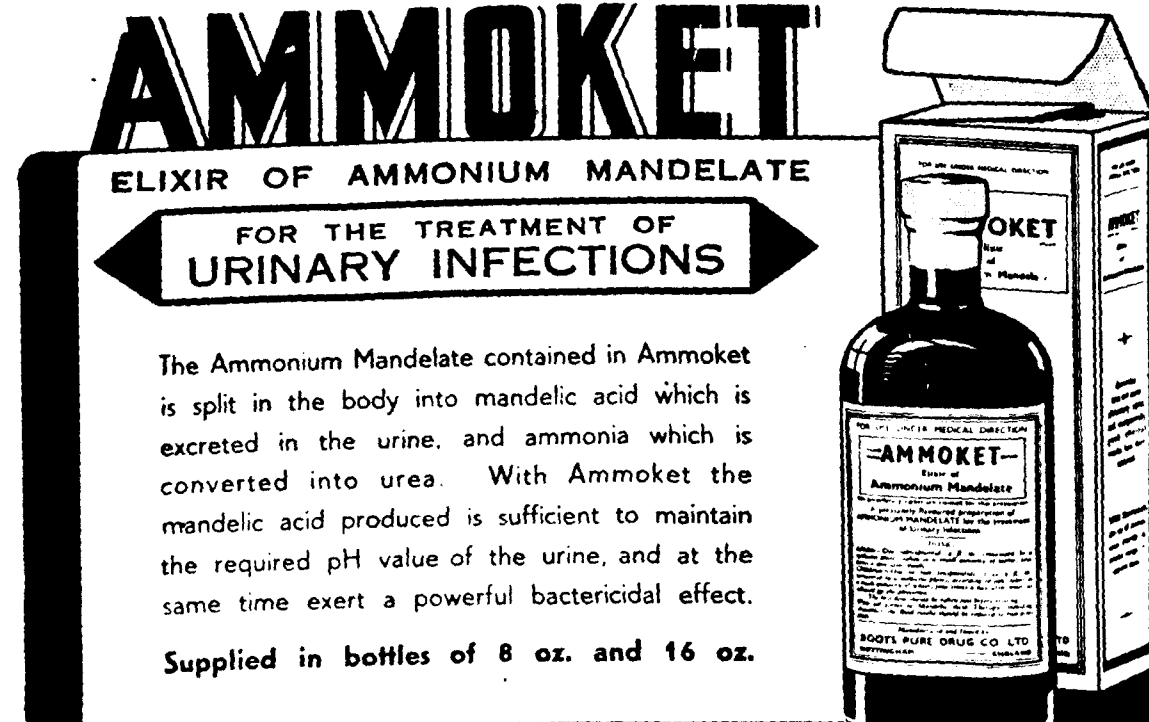
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All communications regarding subscriptions and remittances of the same should be addressed to Dr. Khan Chand Wohra, Hon. Treasurer, All-India Medical Licentiate's Association, Borstal Institution Lahore, (Punjab).

All communications regarding policy, programme and work of the All-India Medical Licentiate's Assn. should be addressed to Dr. Manohar Lal Kapur, General Secretary, M.O., I/C. Eye Centre, King Edward Memorial Hospital, Karnal Post (Punjab).

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### Pneumococcal Peritonitis

The difficulties in the diagnosis and treatment of pneumococcal peritonitis, be it primary or secondary, are so great that more often than not this condition passes off unrecognised or recognised so late that medical or surgical treatment becomes infructuous. We therefore welcome the brief but lucid account of this subject by Roantree and Caplan, De and Ibrahim in the *Indian Medical Gazette*.

There is no doubt, as they write, that its incidence is rare, and the most peculiar part of it is, that it occurs more among children than adults, and more in female than in male children under eleven or twelve years. Somehow or other peritoneum does not seem to be a favourite site for pneumococcus as pleural and pia-arachnoid membranes are, and although we do not know yet why it should be so, it however obviously explains the rarity of pneumococcal infection of peritoneum.

\* March 1941, pp. 129-135

Roantree and Caplan cite a recent case of their own, an Anglo-Indian female child of 3 years, suffering from primary pneumococcal peritonitis. The case was atypical in as much as there was absence of high pyrexia and diarrhoea. The diagnosis was arrived at after abdominal section when a very acute bilateral salpingitis was discovered, and a swab from the purulent patches showed Type I pneumococcus in pure culture. Appendicectomy was performed though appendix was normal, with a small drain down to the pelvis. The child was subsequently put on M. & B 693. The authors report quick and satisfactory recovery.

De and Ibrahim report a case of Hindu male aged 11 years, with dyspnoea, diarrhoea, irregular temperature and effusion in pleural and peritoneal cavities. Diagnosis was arrived at by bacteriological examination of aspirated pleural and peritoneal contents both of which showed a pure growth of pneumococcus. The treatment they gave were pleural and peritoneal drainage, sulphapyridine and injections of pneumococcal immunogen, and other general measures (with very good results).

The first case was attributed by the authors to infection from the genital tract, and the second to 'generalised pneumococcal infection' of both the pleural and peritoneal membranes.

These two cases amply illustrate the real difficulties in diagnosis. Abdominal distension and diarrhoea with remittent temperature in the course of pneumonia must arouse suspicion of peritoneal infection, and this should be clearly distinguished from the peritonism not infrequently met with in cases of lobar pneumonia. Primary infections are indeed more difficult to diagnose except by subjecting the aspirated material to bacteriological examination. Appendicitis may be excluded by the presence of comparatively higher temperature and leucocytosis, and signs of acute toxemia.

The same difficulties would beset in treatment also. The nature and extent of surgical interference should be clearly visualised, and resorted to only when it is imperative. We entirely agree with Roantree and Caplan when they say:

"At the early stages surgery is contra-indicated but in late cases with local collections of pus surgical drainage is a necessity and it is unlikely that M. & B. 693 will have any effect on such cases unless septicaemia is present."

This is by no means a complete account of the subject, but is dealt with in this article only to indicate its importance either as a primary or a secondary infection and the need for vigilance in diagnosing such an uncommon and rare condition. The difficulties in diagnosis and treatment of primary pneumococcal peritonitis are certainly greater than usually is the case with secondary pneumococcal peritonitis.

The Next Issue is a 'Special Number on Medical Emergencies

## Population and Food Supply

As early as 1933, in his annual report, Col. Russell, the then Public Health Commissioner with the Government of India, drew an alarming picture of the growing population (on the basis of 1931 census) and the inadequacy of food supply, since "only 0.72 acre per head was under food crop, quite insufficient for even the present population". He therefore predicted a food-famine in 1941 with the population growing to 400 millions.

This food shortage was estimated in 1938 by Radhakamal Mukherjee and B. Viswanath at 12% and 33% of the population, in spite of the Government of India's report that the food crops had recorded an increase from 1935. The latter calculation was challenged by Dr. P. J. Thomas of the Madras University on the ground that "its scientific basis was slender". The Labour Secretary to the Government of India affirmed, on the floor of the Central Assembly, while replying to a question, that there was definite shortage of rice production by 13.5%.

Aykroyd has pointed out that the rice-eating population of Madras is increasing more rapidly than rice production, and that the gap between internal production and requirement is being filled by increasing imports.

The just-now completed 1941 census reveals that the population has increased by roughly 10 to 12% over the 1931 figures. The forecasted food-famine of the Public Health Commissioner may therefore become a reality.

Various reasons have been advanced for the present shortage of food crops, such as unattractive nature of agricultural labour, increased industrialisation, lack of interest among the public and the leaders regarding the necessitous food-crops production. The exact situation, however, is that we have not advanced either in industry or agriculture. The ryot grows what it pays and has never cared to worry himself either about his own food problems or his health. Added to all these, we have the present war whose supplies must be our first demand. As such, food sufficiency is bound to decrease.

Having landed into difficulties by their own inaction, the Government are now making frantic efforts to import Burma rice to replace the shortage of Indian rice. Arrangements for shipments of rice are now being seriously considered. Taking advantage of our distressed condition, Burma demands that 10 lakhs of tons of rice be exempted from import duty. This is the ultimate result of tinkering with agricultural problems in an agricultural country like ours.

\*Reply to Mr. Shantidas Askaran, M.L.A., on March 10, 1941.

## SPECIAL ARTICLES

### Indigenous Drug Industry

J. C. Gosh, B. Sc., (Manchester) Principal, School of Chemical Technology, Calcutta. Formerly, Pharmaceutical Chemist, Govt. of India Medl. Stores Dept.

#### INDIA'S TASK AHEAD

Opening on the 18th January, 1941, the exhibition of local chemical and pharmaceutical products in connection with the 9th re-union of the past and present students of the Campbell Medical School, Calcutta, Dr. J. B. Grant, Director of the All-India Institute of Hygiene and Public Health, referred to the urgency of standardisation in the matter of drug manufacture and drug supply in India and said that the provision of medicines and biological products of good and dependable quality within the means of the masses constituted an urgent problem. It was true, he continued, that several drugs from indigenous raw materials, as also biologicals of good quality, were being manufactured in the country, but more still remained to be done. Dr. Grant was sure of India's capacity to produce almost all her drug requirements if the available scientific talents of the country were fully mobilised. The obstacle, however, in the way was, in his opinion, the resort, by unscrupulous manufacturers, to adulterated, under-strength and deteriorated raw drugs and to the general employment of unqualified people in the manufacturing work. This being the position, as found on enquiry by eminent authorities from time to time, an indigenous drug industry of the right type would not develop in the country until and unless the ethical aspect of the problem was seriously tackled.

2. The view mentioned above was originally expressed in 1917 in the writer's pamphlet on "Drugs Manufacture—What it means." It was remarked there

If Russell's forecast becomes a reality, which we hope it would not, there can be no doubt that the already impoverished health and physical fitness of our people would worsen itself still further. That there is a close connexion between population, nutrition and agricultural problems was stressed by the two British experts, Sir John Russell and N.C. Wright who reported in 1937 on the work of the Imperial Council of Agriculture.

What we need to-day, and stress on the Government of India and public leaders, is a bold and comprehensive agricultural policy. It should be so worked as to ensure that food-supply of the nation is sufficient for health and available at a price within the reach of the poorest. This, of course, is no easy task and will require economic statesmanship of the highest order. And unless this is made possible by scientific planning, the tremendous increase in population shown in the recent Census would be of no advantage to our country, nor could it be utilized to our advantage as it should be.

at the outset that "whether the work was done on a small or a large scale, a thorough scientific training, both theoretical and practical, was indispensable. It was pointed out that this remark, though true of all industries, applied specially to manufacturing pharmacy, the preparations being for human consumption and intended to alleviate pain and not to prolong it, although the latter effect was what was bound to ensure when inferior or wrongly selected drugs were used." This simple fact should be clearly and widely understood, the public rising to the necessity of the occasion and insisting on immediate steps to be taken in the interests of commonweal. As explained elsewhere, India is a century behind in respect of pharmaceutical progress, and the deficiency will have to be made good forthwith however exacting the effort may be.

3. In a further article in 1919 on "Standardised Drugs," the writer made the following remarks:—

The British Pharmacopoeia affords to the members of the medical profession and to those engaged in the preparation of medicines throughout the British Empire, one uniform standard and mode, whereby the nature and composition of substances to be used in medicine may be ascertained and determined. Manufactured drugs, which are up to this standard are called standardised drugs. Drugs of inferior quality, or their commercial varieties not recognised in the British Pharmacopoeia, are not fit for use in medicine and must be rejected, it being impossible to obtain the curative effect from inferior and wrongly selected drugs.

The selection of genuine drugs, their manufacturing processes, and finally the standardisation and assay methods are highly technical subjects, and it is quite impossible for a general chemist, namely, a B.Sc., an M. Sc., or D. Sc. and Ph. D. in pure chemistry, or for a medical man (L. M. S. M. B., etc.), to undertake these specialised duties without a thorough previous technical training. This training demands a knowledge not only of chemistry, but also of botany, both pure and applied, and of a few other subjects widely divergent from chemistry, and unless there are regular arrangements here, as in a modern British University of Manchester, Leeds, Sheffield, Birmingham, Bristol and Liverpool, to provide for an up-to-date training in the various branches of applied science, it is hopeless either to develop or to initiate industries in India on right lines. What we need immediately for the development of chemical industries is, therefore, a body of technical chemists, there being a good deal of difference between a qualified technical chemist in a factory and a general chemist teaching in, or passing out of, a college in India.

4. More facts connected with the problem of drug manufacture and drug supply in India and with standardisation appeared in the writer's pamphlet (1919) on *Indigenous Drugs of India—Their Scientific Cultivation and Manufacture*. The pamphlet was widely appreciated in Europe, America and India. It clearly pointed out that practically all drugs found in British Pharmacopoeia could be grown in this country, more than 50 per cent of them being indigenous to India and adjoining islands. Examples were given, showing what small progress there was in drug cultivation in the country and in what directions developments were possible. It was explained how drug cultivation in limited areas

and regular drug farming could be pursued in India as a profitable industry and how urgent was the need here for standardisation, also for introducing pharmaceutical education and pharmacy laws, not only to stimulate economic progress but also to protect public health, there being in the country widespread drug adulteration and spurious drugs with false and misleading advertisements. The writer worked further single-handed and at a heavy sacrifice, teaching students pharmaceutical subjects in his School of Chemical Technology, Calcutta, since 1919 till they fought shy of the School owing to there being no pharmaceutical career open to them because of the fact that there was no encouragement in India of pharmaceutical education either by legislation, as in Western countries, or by the Universities. In fact, the ignorance, till lately, among the intelligentsia and even among the more informed circles, as to the place of pharmacy in "technology" and as to what "technology" meant, was too strong to be readily shaken. To arouse, however, public interest in the subject and educate public opinion, the writer continued his writings, first as contributions to newspapers and periodicals. Subsequently they were published as books, brochures and pamphlets, the latest in the series being a revised and enlarged edition (1940) of the original pamphlet (1919). Concurrently with the publications the writer's research work took practical shapes and several products, which were awarded a certificate and a medal by Calcutta Exhibition of 1923, and later appreciated by the medical profession, were placed on the market. On the other hand, barring the casual appreciation by two successive Vice-Chancellors of the Calcutta University and a President of the Bengal Chamber of Commerce, there was no appreciation by the public of the writer's prolonged efforts. This fact alone was extremely disappointing and made a change for the better urgently necessary. This change is immediate pharmacy legislation (central) as mentioned in the writer's preceding article on the pharmaceutical conference at Benares in January 1941, which was published in March 1941 issue of the *Indian Medical Journal*.

### Report on Classification of Pulmonary Tuberculosis

(By the Tuberculosis Association of India)

It is recommended:—

(1) That in classification there should be taken into account both the anatomical extent of the disease as judged by physical and X-ray examination, and the degree of systemic disturbance as judged by constitutional symptoms and blood examination:

(2) That classification should be according to three stages with the sub-divisions A, B, C, denoting the degree of systemic disturbance:

(3) That patients should be classified according to this scheme within the first month of treatment:

(4) That within this classification patients should be divided into two main groups, those in whom tubercle bacilli are found, any time before or during treatment until discharge:

(5) that some may desire to make further sub-divisions of patient into two groups, according to the

history, 'Acute-Initial' and 'Chronic-Recrudescence', but that at this stage in India this may not be possible as a general procedure. By the term 'Acute-Initial' is meant cases with an acute onset, a course of illness more or less continuous, without healthy intervals, with a duration not exceeding two years. By 'Chronic-Recrudescence' is meant cases slowly evolutive with healthy intervals, and cases of 'Acute-Initial' group with a duration of illness of more than two years.

For the purpose of recording the anatomical extent of disease determined either by physical or X-Ray examination, or by both, we suggest that the lung area should be divided into six zones, Upper, Middle and Lower Zones in each lung.

#### (1) UPPER ZONE

The Upper Zone is the part of the lung above a horizontal line running from the lower border of the anterior end of the second rib round to the spine of the 5th dorsal vertebra, the patient being in the erect position. In this area, the apex is the part of the lung above the clavicle with the patient in the erect position and the shoulders not elevated.

#### (2) MIDDLE ZONE

The Middle Zone is the part of the lung bounded by the above line and a horizontal line running through the lower border of the anterior end of the fourth rib round to spine of the 9th dorsal vertebra.

#### (3) LOWER ZONE

The Lower Zone is the part of the lung below the Middle Zone.

### I. The Stages of Classification are then as follows:

#### STAGE I.

A lesion affecting not more than one zone or if there is a lesion overlapping two zones the extent of the total lesion should not cover more than one zone. If there is bilateral affection it should be grouped in this stage only if the lesion is not below the clavicle on one of the sides and the total extent of the lesions is less than one zone.

No cases with cavities should be grouped in this stage.

If there is complete pneumonic consolidation of one zone, even if it is confined to one zone only, it should be grouped in Stage II.

#### STAGE II.

In unilateral disease the lesion should not extend to more than two zones. In bilateral disease the lesions should not extend more than one zone on each side, and the total extent should not be more than the equivalent of two zones.

If there is cavitation, it must be limited to a single cavity the diameter of which is not more than 2 c.m. If there is no X-Ray, all cases with cavitation should be placed in Stage III.

\* If X-ray is not used, this should be noted in reporting extent of disease.

If two zones are completely consolidated, even without cavitation, the lesion should be grouped under stage III.

#### STAGE III.

All lesions more advanced than those grouped under Stage II, and all with a cavity larger than 2 c.m. in diameter, or with multiple cavities.

All cases with spontaneous pneumothorax associated with an active tuberculous lesion in the lung.

In addition to the above primary considerations according to the lung lesion, complications both tuberculous and non-tuberculous have to be taken into account.

Such tuberculous complications as laryngeal tuberculosis, tuberculous enteritis, extensive tuberculosis, osteo-articular tuberculosis, renal tuberculosis, pleurisy, with effusion, polyserositis and meningeal tuberculosis, and such non-tuberculous complications as diabetes, kala-azar and pregnancy, must be taken into consideration in classification. Patients with these complications are generally put one stage down, for example, a patient of the lung disease would be classified as Stage II if he has also laryngeal tuberculosis.

If the complication is very severe or if there is more than one complication, the patient is classified as being in Stage III.

The degree of systemic effect should be noted at the end of one week's observation, after which the stages should be sub-divided into A, B, C.

A.—Constitutional disturbances, absent or slight, as judged mainly by temperature, pulse rate, influence on nutrition and strength, wasting, the sedimentation rate and blood picture. As regards temperature, the average maximum in the evening over a period of one week after half an hour's rest in bed should not exceed 99° F. oral or 99.8° F. rectal, the average pulse rate over a period of one week should not ordinarily exceed 90 per minute, the sedimentation rate and blood picture should not show marked variation from the normal.

B.—Constitutional disturbance moderate, i.e., intermediate between A and C. No serious complications affecting any organ or tissue seriously impairing function, local or constitutional.

C.—Severe constitutional disturbance. The average of the maximum temperature over a period of one week with the patient at rest exceeds 100.4° F. oral or 101° F. rectal, the average pulse rate over a period of one week exceeds 90 per minute, the sedimentation rate is high and the blood picture considerably deviated from normal.

### II. Classification of Results of Treatment at the Time of Discharge

These should be expressed in the following terms—

#### (1) ARRESTED

No clinical symptoms of active disease, no Tubercle Bacilli in the sputum for the last three months\*, stetho-

scopic examination showing no signs of active disease, (no persistent rales); X-Ray examination showing lesions apparently healed; sedimentation rate and blood picture normal or nearly normal the patient able to walk at least two miles twice a day over a period of at least one month without any adverse effect.

#### (2) QUIESCENT

No clinical symptoms of active disease, no Tubercle Bacilli in the sputum for the last three months; there may be slight cough and moderate expectoration; stethoscopic examination usually showing no rales, although a few rales and rhonchi may still be present; X-Ray examination should show lesions apparently healed. Sedimentation test and picture normal or nearly normal: the patient able to walk 1½ miles twice a day over a period of at least one month without any adverse effect.

#### (3) MUCH IMPROVED

No clinical symptoms of active disease; the sputum ordinarily free from Tubercle Bacilli for the last three months (slight cough in the morning with moderate expectoration or the finding of a few tubercle bacilli does not preclude being in this category if other improvements are maintained); stethoscopic examination showing signs reduced as much as could be expected in each individual (in some cases a few rales and rhonchi may still be present); X-Ray examination showing lesions apparently healed or considerably improved and any cavities healed or much reduced with thick fibrotic walls; sedimentation rate and blood picture normal or nearly normal: the patient able to walk at least one mile twice a day over a period of at least one month without any adverse effect.

#### (4) IMPROVED

Clinical symptoms considerably improved; sputum may still show Tubercle Bacilli; stethoscopic examination showing signs improved; X-Ray examination showing improvement; sedimentation rate and blood picture improved; the patient ordinarily out of bed and able to walk at least two furlongs twice a day over a period of at least one month, without a set-back.

#### (5) STATIONARY

#### (6) WORSE

#### (7) DIED

### III. Classification of After-Results

The expression "Apparently Cured" is not mentioned in the Classification of Results of Treatment at the time of discharge, as this classification can only be made after two years' observation of the patient living under ordinary conditions of life. During this period the patient should have maintained the conditions detailed under "Arrested".

\* Before the sputum is declared negative, it should have been examined on four separate days in each of three months, using the ordinary smear method. It is, however, strongly recommended that culture methods should be used when no Tubercle Bacilli are found by the smear method. In all reports from institutions it should be stated, when giving figures for positive or negative sputum examination, whether culture methods have been used.

### FOREIGN MEDICAL NEWS

#### Our American Letter

(From Our Own Correspondent)

#### THERAPY OF HYPERTENSION IN AMERICA

Some decades ago hypertension was regarded as a compensatory phenomenon necessary for the maintenance of the circulatory functions at a normal pitch. It is now known, however, that a lowering of the blood pressure in instances of hypertensive states is compatible with unimpaired circulation and normal vitality. The means of treatment are three: medicinal, hygienic and surgical. The therapy with drugs has been extensively considered by H. O. Mosenthal, Professor of Medicine, in the frame of a series of articles on "The Pharmacopeia and The Physician". This therapy, as every expert knows, is changing through the centuries and years and even months, and it is a valuable aid to see which remedies are in common use in America at present.

Thus, according to Mosenthal, three groups of depressor drugs may be considered: (1) vasodilators, (2) sedatives, (3) empiric remedies. Certain of the vasodilators (glyceryl trinitrate under the tongue, amyl nitrate by inhalation) are invaluable in the treatment of angina pectoris because they result in prompt dilatation of the coronary vessels. When the dosage is sufficient to bring about a general reduction of arterial and arteriolar tone and a lowering of the blood pressure, vasomotor collapse often follows. The vasodilators that are in common use and their dosage are as follows:

*Amyl nitrate*.—Administered by inhalation, has a vasodilator effect in from 10 and 15 seconds, and its action is terminated within 7 minutes. Average dose: 0.2 c.c. (3 minims) dispensed in glass pearls, which are crushed beneath the nostrils and inhaled.

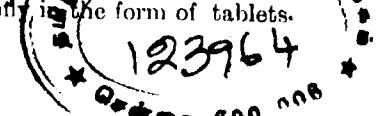
*Glyceryl Trinitrate* (nitroglycerin).—Vasodilator action starts within a minute and lasts about half hour; this is the effect when the drug is swallowed; when it is placed under the tongue the results are more rapid and fleeting.

*Spirit of Glyceryl Trinitrate* (spirit of nitroglycerin) U. S. P.—The average dose is 0.06 cc. (1 minim).

*Tablets of Glyceryl Trinitrate* (tablets of nitroglycerin) U. S. P. The average dose 0.0006 Gm. (1/100 grain).

*Sodium Nitrate* (U. S. P.).—This is a white powder that deliquesces in the air and hence is dispensed in solution. Produces a vasodilator effect in 15 minutes which is complete in from 1 to 2 hours. Average dose: 0.06 gm. (1 grain).

*Erythritol Tetranitrate* (erythrol tetranitrate).—Vasodilator action begins in 10 minutes and persists for 3 or 4 hours. Pure erythritol tetranitrate is a crystalline mass which explodes on percussion, hence it is marketed chiefly in the form of tablets.



**Diluted Erythryl Tetranitrate** (diluted erythrol tetranitrate) U. S. P.—Is about 50 per cent erythryl tetranitrate and 50 per cent lactose. Average dose from 0.03 to 0.06 gm. ( $\frac{1}{2}$  to 1 grain).

**Bismuth Subnitrate**.—Stieglitz advanced the idea that in the intestinal tract through bacterial action nitrates are slowly liberated from bismuth subnitrate and that the blood pressure would be lowered thereby. Administration of bismuth subnitrate of grain (0.65) capsules three times a day. Stieglitz obtained excellent results while others could not duplicate them. Stieglitz advocated the use of the bismuth subnitrate over a period of many weeks: may be the lack of sufficiently long administration accounts for failure to obtain the same effects.

If adequate rest is not obtained *sedatives and hypnotics* are indicated. Previous to the intensive development of the barbitol compounds, that is up to about 1930, the bromides and chloral were used extensively, and they are still employed by many, according to Mosenthal.

**Ammonium, Potassium and Sodium Bromide**.—Sedative dose: 0.3 to 1 gm. (5 to 15 grain), repeated every 4 hours. Hypnotic dose: 2 gm. (30 grains)

**Chloral Hydrate**.—Sedative dose: 0.2 to 0.7 gm. (10 to 30 grains) repeated every 4 hours. Hypnotic dose: 0.7 to 2 gm. (10 to 30 grains). The individual susceptibility to chloral varies enormously. Mosenthal has seen one patient—a 200 pound man, broad shouldered and well over 6 feet tall who had trouble keeping awake during the day with a grain (0.33 gm.) dose, while a small woman scarcely obtained a night's sleep after taking 30 grains (2 gm.).

The available elixirs of *barbital* and *barbital compounds* are listed in the following table:—

|                               | One Fluidrachm Contains          | Hypnotic Dose                   |
|-------------------------------|----------------------------------|---------------------------------|
| Elixir of phenobarbital N. F. | 0.015 gm. ( $\frac{1}{4}$ grain) | 0.1 gm. ( $\frac{1}{2}$ grain)  |
| Elixir alurate                | 0.3 gm. ( $\frac{1}{2}$ grain)   | 0.065 gm. (1 grain)             |
| Elixir amyral                 | 0.015 gm. ( $\frac{1}{4}$ grain) | 0.1 gm. ( $\frac{1}{2}$ grains) |
| Elixir Dial                   | 0.05 gm. ( $\frac{1}{2}$ grain)  | 0.1 gm. (4 grains)              |
| Elixir barbital, N. F.        | 0.12 gm. (2 grains)              | 0.3 gm. (5 grains)              |
| Evipal—oxidized in the body   | " "                              | 0.24 gm. (4 grains)             |
| Seconal " "                   | " "                              | 0.1 gm. ( $\frac{1}{2}$ grains) |

In the treatment of hypertension, sedation during the day and hypnosis at night are ordinarily the main objectives so that the dosage of the barbiturates will differ during the day and at night. Some of these drugs are cumulative, as they are not destroyed in the body, and hence they should be used intermittently.

**Empiric Remedies**, in a sense, are vasodilators if they lower blood pressure. On the other hand, their mode of action is largely unknown and it is doubtful whether any of them act specifically in relaxing the musculature of the arterioles. Consequently they cannot be regarded as true direct vasodilators. Thus far, according to Mosenthal, no drug or preparation merits the designation of specific remedy for hypertension,

though many of them are spoken of in that way by their sponsors.

**Thiocyanates**.—Sodium or potassium thiocyanate 0.2 gm. (3 grains) to 0.3 gm. (5 grains) in solution three times a day has been widely used in the treatment of hypertension. Also available in the National Formulary as an elixir containing 0.16 gm. ( $\frac{1}{4}$  grains) per teaspoonful. Control of the thiocyanate administration by quantitative determination of the cyanates in the blood is a distinct advance in this therapy. The original conclusion of Barker that the optimal therapeutic level ranges between 7 and 12 mg. per hundred cubic centimeters of blood and that higher concentrations may be associated with toxic manifestations has been verified and furnishes an excellent guide to the rational use of the cyanates.

**Iodide**.—Small doses of potassium or sodium iodide from 0.065 to 0.3 gm. (1 to 5 grains) will sometimes prove to be effective remedies for hypertension. This dose should be given in solution, well diluted, once a day. Tablets are available of organic iodine compounds such as calcium iodobenzenate U. S. P. (Sapodin), or lipiodine-Ciba, and one or two of these tablets a day may be more convenient for the patient than the fluid medication.

Tissue extracts taken from the pancreas, liver, muscle and elsewhere have been used and endorsed, but thus far none of them have proved satisfactory in the treatment of hypertension. Histamine, acetylcholine, acetyl-beta-methylcholine according to Weise are either unsuitable or ineffective for the treatment of persistent hypertension.

Watermelon seed and mistletoe have yielded various preparations that have been accredited with the properties of lowering blood pressure, however, they have not received general endorsement.

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"I used your oil for Leucoderma which I found excellent."  
(Sd.) B. WEIDLE, *Residuary, A. W. F. P.*

"\*\*\* The result is very satisfactory \*\*\* sure to cure the disease."  
(Sd.) M. A. BHASKARAN, *Medical Officer, Govt. Leprosy Clinic, Cochin State.*

"Found Miraculous result."  
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"I am very much satisfied."  
(Sd.) S. N. ROY CHOWDHURY, *Manager, Union Pharmacy, Delhi.*

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## INDIAN MEDICAL NEWS

### OUR GENERAL LETTER

**MEDICAL FACILITIES IN KAPURTHALA**  
To afford more medical facilities to the people of Kapurthala State, His Highness' Government is steadily increasing the number of dispensaries in the rural areas. The State has employed one more lady doctor, four nurses and one midwife. A few rural dispensaries have been opened in Dhaliwal. The budget for the current year has been increased to about Rs. 62,000.

**AUGMENTING QUININE SUPPLY**  
Owing to increasing demands for quinine in the Province and the inadequacy of existing supplies the Government of Bengal have decided to increase their production of cinchona. It is proposed to expand the area under cultivation by opening new plantations in suitable localities of the Darjeeling District hitherto under forests. Steps will be taken, at the same time, to effect a further increase in production by improving the productivity of the land through research in methods of cultivation.

**MORE SUBSTITUTES FOR FOREIGN DRUGS**  
More substitutes have been discovered for drugs formerly imported from England.

One of these is nikethamide, which has now been synthesised by an Indian firm. Another (sodium tauroglycocholate) a chemical used in bacteriological work has been manufactured by a Calcutta firm, and sample approved by a Government bacteriological laboratory.

Soap-nuts are being tried by manufacturing depots as a substitute for quilla cortex, an important item used in the manufacture of liquor picis carbonas.

Tolu, largely used in the manufacture of syrup tolu is now difficult to obtain and consequently experiments are being made to ascertain if tincture benzoin can replace tincture tolu, adding, if necessary, flavouring materials.

**A LOSS TO MESSRS. MAY & BAKER (INDIA) LTD.**  
The death in Bombay of Mr. H. Walker, Managing Director, Messrs. May & Baker (India) Limited, Calcutta, came as a great shock to his many friends and business associates.

A Member of the Pharmaceutical Society of Great Britain, the late Mr. Walker worked in West Africa and in Burma prior to joining Messrs. May and Baker (India) Limited, in 1933. He was subsequently appointed Managing Director and will always be remembered by the staff for his ability and rigid sense of fairness as well as for his consideration and kindness.

The late Mr. Walker became ill in October last and his death finally resulted from cardiac failure.

The large number of letters and telegrams received and the wreaths received from Bombay and Calcutta were a tribute to one who was a popular employer and a true friend.

**OPIMUM DEPARTMENT'S INCREASED PROFIT**  
The Opium Department showed a profit of Rs. 1,12,537 for the year ending September 1940 as against Rs. 70,976 in the previous year, states the Department's Annual Report. The revenue for the year amounted to Rs. 44,60,139 as against Rs. 47,39,250 during 1938-39 while total payments made for opium amounted to

Rs. 4,70,315 as against Rs. 4,89,112. The cost of opium per maund showed a decrease from Rs. 479-11-3 to Rs. 470-6-5.

The season, was, on the whole, favourable to the poppy crop, the monsoon rainfall being adequate. Hail damaged the crop in Bareilly Division and at first weather conditions at the time of collection in March, reduced the yield in the western districts, particularly in Shahjahanpur. The area under poppy cultivation was further reduced by 625 acres to 5,438 acres. The area of failure was 509 acres as compared with 1,178 acres in the preceding year. There was a slight fall in the average outturn per acre owing to adverse climatic conditions at the time of collection.

The Factory received 1,306 maunds of opium as against 1,359 maunds in the previous year.

Sales of crude morphine amounted to 800 lb., while scales of cocaine dropped from 163 to lb. 94 lb.

There were six cases in which opium cultivators were prosecuted and convicted, but the quantity of opium seized was not large.

### OUR BOMBAY LETTER

#### BOMBAY'S BLOOD BATH

Bombay and Ahmedabad were the two places in the presidency where recently unbridled canker of communalism played havoc with the lives and properties of the innocent public. While I pen these lines, it is happy to note that normal conditions prevail in both the cities, though tension remains to a certain extent amongst the public of Bombay. During such time, the vigilant work of the police and the silent, unassuming work of the medical men—both of whom are to carry on their duties at the risk of their lives—deserve commendation. The mischief wrought by communal fanatics has been put down by the powers-that-be with an iron hand.

The innumerable troubles arising out of the caste system in the medical profession are yet allowed to go on. The Government should tackle this important problem without any further delay.

#### BOARD OF INDIAN SYSTEM OF MEDICINE FOR SIND

Though Sind is a separate province, yet it is still wedded to Bombay in certain medical matters. In the absence of a Medical Council of her own, the local council rules over the destinies of the registered practitioners of Sind. That is my only apology to harp on Sind matters in my 'Bombay letter' which I hope you, Mr. Editor, will accept. According to the Hakims and Vaid's Act recently passed by the Sind Assembly, a non-official Board is now established to register all the Vaid and Hakims to regulate the qualifications and the steps needed to encourage the study and spread of the Indian System of Medicine. The Board consists of 15 members with Mr. Jamshed N. R. Mehta as Chairman. While inaugurating the Board on April 27th, Premier Khan Bahadur Allahbux said, "At one time the Ayurvedic and Unani systems of medicine enjoyed a great reputation and the existence of a number of quacks in your ranks is one of the main reasons for your present position. Through this new Act however, you will be able to raise your strength and reputation and regain your former position." Let us all hope this pious wish fructifies to the advantage of the country and its people.

## Epitome of Indian Medical Literature

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(1) Viswanathan records 11 cases of non-specific inflammation of the lung simulating active tuberculosis. There may even be radiographic opacities in such cases. 4 patients gave previous history of asthma of duration varying from 6 months to 2 years. Two had suffered from recurrent colds followed by tracheo-bronchitis. The remaining had no previous respiratory troubles. In three cases the onset was sudden with high fever. The remaining 8 cases sought advice for slight cough and fever of varying duration not more than 4 weeks. The author is of the view that tuberculosis can easily be ruled out by the absence of T. B. in the sputum and the complete disappearance of shadows in a comparatively short time. But as the prognosis in the various forms of lung inflammation differ very markedly the author advises to recognise them as separate groups though the essential pathogenesis may be the same.

JR. OF I. M. A., MARCH 1941

|                                                                                                                                                                                                                                                                                                                                                                                                      |     |
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| Studies in Paleopathology—Banerji                                                                                                                                                                                                                                                                                                                                                                    | 263 |
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| (2) Palit and others are of the view that epidemic dropsy is nothing but a group of large number of various diseases. Hence, no single treatment or causation can fit in for the disease. The author's investigations make them believe that the mustard oil theory is ill-defined and therefore suggest further work on the lines of (1) infection or (2) chemical poison (3) metabolic deficiency. |     |

CAL. MED. JR., MARCH 1941

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| Clinical aspects of Epidemic Dropsy—Gosh & others                                                                                                                                                                                                                                                                                                                      | 115 |
| (3) Effect of administration of quinine on malarial parasites in the peripheral blood—Bardhan                                                                                                                                                                                                                                                                          | 125 |
| (4) Artificial fever therapy in gonorrhoea—Bose                                                                                                                                                                                                                                                                                                                        | 127 |
| (3) Bardhan cites two cases where malarial parasites were formed even after a week's administration of quinine. Therefore, the author writes that although it is true that the chances of finding the parasites are greater before the administration of the drug, yet, just because quinine has been given the examination of the blood film should not be neglected. |     |
| (4) Bose gives a history of artificial fever therapy in its various forms as applied in the treatment of gonorrhoea. The percentage of cure is about 79%, but the author quotes Michel who remarks that, since there                                                                                                                                                   |     |

is one death in every 171 patients treated with fever therapy, he "cannot reconcile himself to the risk of a possible mortality in a non-mortal infection."

MED. DIG., MARCH 1941

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |
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| (5) Pendse mentions four cardinal points in the treatment of intestinal haemorrhage in typhoid: (1) Control of peristalsis (2) Stopping of the bleeding (3) Counteracting shock and the fall of blood pressure and (4) Restoration of blood volume. After reviewing the usual modes of treatment, he concludes that each case has to be judged on its own points. "One patient may require repeated saline infusions and others stimulants, while others sedatives." |    |

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ANTESEPTIC, MARCH 1941

This is a continuation of the Special Number on Infectious Diseases, (Feb. '41) epitomised in our May Issue. In this 2nd Special Number, small-pox, typhoid, tetanus, whooping cough, acute poliomyelitis and other diseases are discussed in all its aspects by prominent medical men of our country.

### Special Journals

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| Interpretation of the results of W.R.—Nabih                                                                                                                                     | 29    |
| (6) The authors write that in their six cases of gonococcal arthritis for whom methylene blue (1 sol) was given intravenously, the urethral discharge was untouched by the dye. |       |

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|                                                                                                                                                                                                                                               |    |
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| Placenta Praevia—Nathaniel                                                                                                                                                                                                                    | 1  |
| (7) Functional bleeding of uterus—Niwas Khan                                                                                                                                                                                                  | 8  |
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| (7) Niwas Khan writes that the functional haemodynamics of uterus lies in the disruption of normal timing with change of tone of blood capillaries. Testosterone propionate is the only hormone indicated, but is not effective in all cases. |    |

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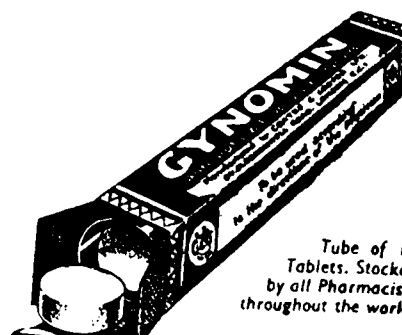
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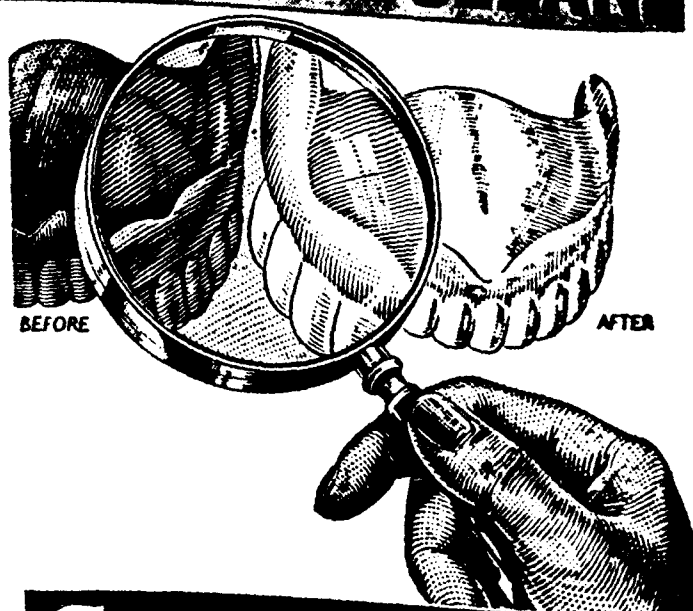
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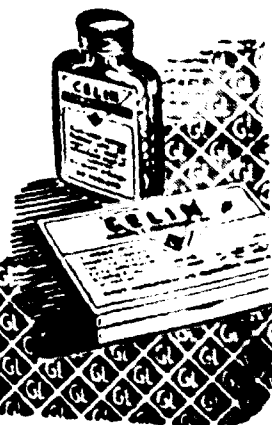
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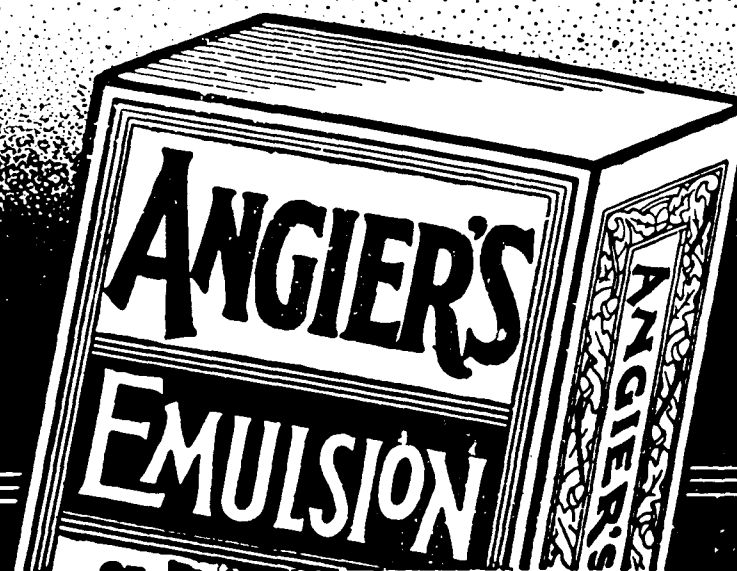
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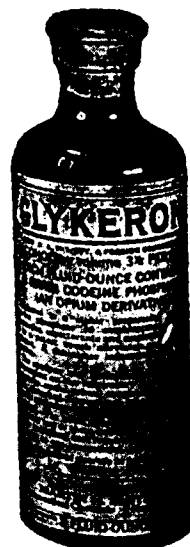
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