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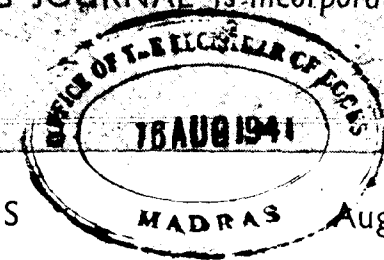


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(With which THE AGRA MEDICAL CLUB JOURNAL is incorporated)



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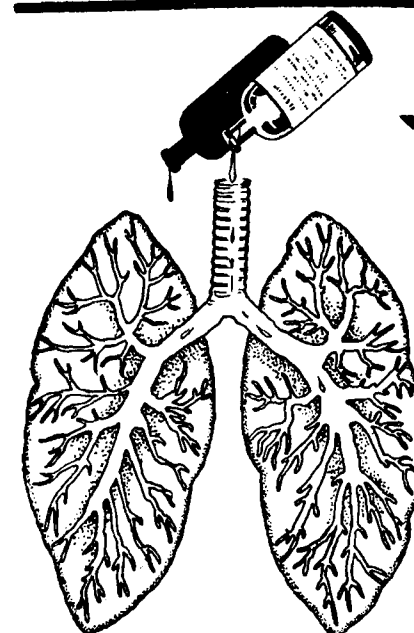
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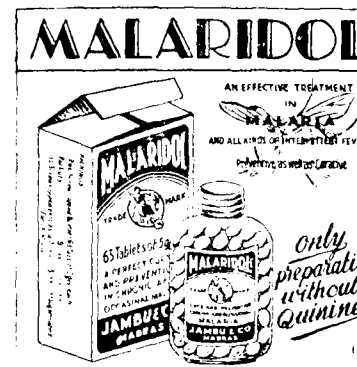
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ADDRESSES AND ARTICLES

The Best Use of Food

● A. Sreenivasan, M.A., D.Sc., A.I.C.

(Agricultural Chemist, Institute of Plant Industry—Indore)

In the previous article*, an account was given of the central features of what has been frequently referred to as the newer knowledge of nutrition. One immediate result of the spread of this knowledge has been the introduction into the market of several of the deficiency food factors known to be responsible for many maladies. Although desirable in itself, yet, owing to all kinds of advertisements, the vitamins and other food constituents are discussed in the drawing room as well as in the dining room but not perhaps enough in the kitchen. Unfortunately, among the uninformed, their importance in nutrition is not always viewed with discrimination. Some seem to think nowadays that if the vitamin supply is secured, the rest of the dietary may be left to chance while there are others who suppose that the vitamins are so good that we cannot have too much of them. Still others argue, sceptically enough, that because the human race has survived till now in complete ignorance of all such details the knowledge that has been gained must have academic interest alone. Needless to say, these views are all inaccurate in the extreme; as Hopkins says, nature can to-day assist nature to an extent not freely admitted or even thought of a few years ago.

Food in relation to Health and Efficiency

Careful and painstaking researches, extending over several years, have now conclusively demonstrated that a host of diseases such as beri-beri, pellagra, scurvy, rickets, dental caries, tender gums and pyorrhoea, night blindness, keratomalacia, angular stomatitis, gastrointestinal disorders, anaemia, etc. owe their origin to improperly constituted food. Lack of resistance due to inadequate growth and development is the chief reason why scores of people succumb to scourges such as malaria, influenza, kala-azar, dysentery, cholera, etc.

The importance of nutrition as a factor in Britain's defence is emphasized in a recent book entitled *Feeding the People in Wartime* by Sir John Boyd Orr and David Lubbock. These authors rightly point out that much new knowledge has now accumulated and the dependance of morale and powers of endurance on the quality and amount of the food supply has been established.

Standards of Nutrition

This development of nutritional science has been of fundamental importance and has marked a great advance in our understanding of the right use of foods so as to promote the proper nourishment of the body. The act or process or rather the series of co-ordinated processes whereby this nourishment of the body is effected is defined as nutrition.

Many attempts have been made to aim at definite standards of nutrition. The assessment of the state of

* *Ind. Med. Jv.*, June 1941, pp. 137-140.

nutrition and the detection of malnutrition are very similar problems. We have chiefly the clinical and the anthropometric methods. In the first, the state of nutrition is assessed by the general health—excellent, normal, or sub-normal as the case may be—or by the presence of specific diseases, such as, xerophthalmia, dental caries, etc. In the latter, age-height or age-weight or arms-chest-height (A.C.H.) measurements are used as standards. Figures for these standards under Indian conditions are wanting; but it must be stated that physical development is not altogether determined by food alone but depends also on climate, environment, heredity, and so on. Hence, all such standards based on physical development are bound to prove unsatisfactory, or at any rate, not widely applicable. A simple but good criterion according to one authority, is the state of the skin—a good, glossy skin being a reflection of the glow of health within.

Factors affecting Nutrition

Nutrition is adversely affected by a number of factors such as imperfect oxygenation of the blood due to faulty breathing, lack of proper ventilation or fresh air, lack of exercise, insufficient rest and want of sleep, over-work and fatigue, worry and emotions, excessive drinking habits, indigestible foods, and many conditions of ill-health. But the most important factor is food of improper constitution. The greatest single factor in the acquisition and maintenance of good health is perfectly constituted food.

Nutritional Characteristics of the Common Food Articles

How best to draw upon the different types of food in meeting the nutritive requirement and thus obtaining a well-balanced diet must always remain, to some extent, an individual problem, but its solution can be greatly facilitated by a consideration of the nutritional characteristics of our common articles of food. Most of these can be helpfully grouped into some half a dozen classes as follows:

- (i) cereals and other grain products: economical sources of energy and protein but not satisfactory in their mineral and vitamin values.
- (ii) sugars and fats: supplementary sources of energy; some fats like ghee act also as sources of the fat-soluble vitamins.
- (iii) Meat, including fish and poultry: rich in proteins, fats, or both, but showing in general about the same deficiencies as the grains.
- (iv) Pulses or dhal: intermediate in many respects between grains and meat.
- (v) Fruits and vegetables: widely variable in their protein and energy values but highly important as sources of minerals and vitamins; and
- (vi) Milk: important as source of energy. Proteins, mineral elements and vitamins—the most efficient of all natural foods in making good the deficiencies of cereal and meat diets and in ensuring all round adequacy.

To these must be added eggs which are intermediate in value between meat and milk.

It becomes apparent that a dietary made up too largely of cereals, meats, sweets and fats may be satisfying to the palate and to the traditional demand for variety, may furnish ample calories and proteins and yet fall far short of furnishing adequate amounts of some of the minerals and vitamins. Only liberal allowances of fruits, vegetables and, especially, milk, in its various forms, will serve to make an ordinary dietary or food supply more conducive to proper health and nutrition.

What is a Balanced Diet?

From all these, it may be concluded that all we need for adequate nourishment of the body and for physical efficiency are present in a judicious combination of whole cereal grains, pulses, milk and milk products, roots, green and leafy vegetables and fruits with egg or meat occasionally. What is eaten besides these is more a matter of taste than of necessity. It is an axiom in dietetics that in variety lies safety.

The cheapness of cereals and the efficiency with which milk supplements them has given rise to the saying that "the dietary should be built around milk and bread." Experiments carried out at the Columbia University have shown that rats kept only on a diet of which dried, whole milk constitutes one-sixth, and ground, whole wheat five-sixths of the food mixture, have thrived through over forty generations.

Vegetables and fruits, taken as a group, may be ranked after grain products and milk in importance as constituents of an economical and well-balanced diet. They tend to correct both the mineral and vitamin deficiencies of the grain products and, in a sense, they supplement the milk also in that they are usually rich in iron or vitamin C or both.

The Protective Foods

The minerals and vitamins are classed as protective foods, so called because they aid in protection against actual deficiency and in the promotion or enhancement of vitality—of "positive" or "buoyant" or better-than-average health. Milk, fruits, vegetables and eggs come in this class. "Preservation of the characteristics of youth and extension of the prime of life" is the apt phrase used by McCollum and Simmonds to summarise the advantages of a liberal use of the protective foods to adults as well as to children.

Adequate and Optional Nutrition

Our knowledge concerning the importance of the protective foods in nutrition has resulted largely from experiments with laboratory animals. The significance of the relation of food to health becomes apparent only as feeding experiments upon laboratory animals are followed throughout the entire normal lives of the individuals under observation and through successive generations of families kept upon different diets but otherwise under identical living conditions. In human experience, so many factors may enter to influence health in the course of a lifetime that it becomes difficult to separate and measure the effects of food alone upon the whole duration and efficiency of life. But this can

be and has been done with laboratory animals of rapid growth and early maturity such as the rat and it has been possible to determine, under conditions uniform in all other respects, the influence of modifications of the diet upon the various factors of health. Among the recent findings of nutrition experiments carried through successive generations of such laboratory animals is the fact that, starting with a dietary already adequate according to current standards, it is possible, by enrichment of the diet in certain of its chemical factors, to induce a higher degree of health and vigour and a longer adult-life-expectation. This influence of the improvement of food supply upon growth, development and vitality is of especial importance. Earlier views on longevity have only succeeded in correlating it with heredity. Therefore the present experimental correlation of length of adult life with an improvement in an already adequate food supply is a finding which is at once constructive and optimistic.

We now see that adequacy alone is not a sufficient aim. It is true that we should make all dietaries adequate; but having found or secured the adequate, we no longer rest content with it as if there were nothing more to be learned or accomplished. Not merely adequate but rather optimum nutrition is and should now be our aim.

Food Values of Indian Dietaries

The character of the average Indian dietary may be judged from the available data on food surveys which, unfortunately, has been neither detailed nor intensive. From a knowledge of the limited data available, in comparison with the amounts actually required for normal nutrition, it may be stated that, in spite of the large variations in the nature of the dietary from province to province, Indian diets as a whole are deficient in proteins, calcium, iron and the vitamins. The average Indian food budget can be vastly improved by giving greater prominence to milk, vegetables and fruits, the money needed for this being obtained, if necessary, by reducing the expenditure on meats and sweets.

A suggested Family Food Budget

Although it is not possible to make any strict distribution of expenditure over the different articles of food, yet reference may be made to the following simple suggested family food budget which has been widely recommended and found useful in practice elsewhere:

- One-fifth more or less for vegetable and fruits.
- One-fifth or more for milk and milk products.
- One-fifth or less for meat, fish and eggs.
- One-fifth or more for cereals and grain products.
- One-fifth or less for fats, sugars, food adjuncts, groceries, etc.

For those who do not take meat, fish or eggs, this money may be spent on pulses (*dhal*s) and grains.

Mode of Preparation of Food Articles

In addition to the chief faults of the deficient Indian diet, there are certain defects that are inherent in our mode of preparation of the chief articles of food. Thus, the majority of the rice consumers take to polished rice; the process of polishing is altogether wasteful and in spite of this recognised loss in nutritional ingredients as a result of polishing, it becomes difficult to get over

Clinical Observations on Rickets

● A. V. S. Sarma, M.B., B.S., D.C.H. (Lond.)

(Government Stanley Hospital, Madras)

The incidence of rickets in Northern India (Kashmir, and the cities of the Punjab) has been adequately dealt with by Wilson. That cases of typical rickets are seen in the hospitals at Madras is the experience of every physician, but regarding the exact incidence no accurate data are available.

Out of a number of cases of typical rickets seen by the writer, three fairly advanced ones have been studied as examples and the three cases are from the poorer classes of hospital patients. The summary of the three cases is as follows:—

1. Abdul Khadar, 1 year and 3 months old, Muhammadan male, came into the hospital for diarrhoea of 10 days' duration.

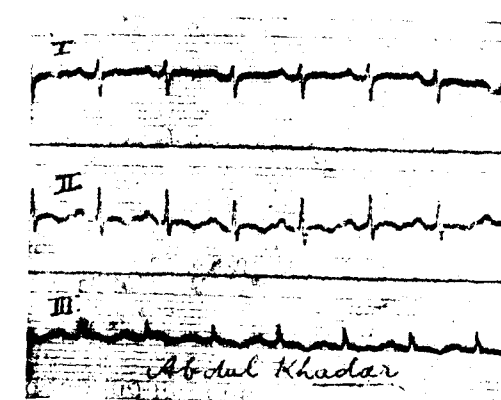
Fed previously on insufficient breast milk, cow's milk, rice conjees etc.

Alimentary System.—clear tongue, clear throat, and healthy tonsils. Slightly distended and soft abdomen. No palpable spleen. Liver not enlarged. Visible gastric bulging due to pylorospasm.

Cardiovascular System.—Pulse rapid, regular and of poor volume and tension. Apex beat visible and palpable in the fourth left space and in the mid-clavicular line. Borders not outside limits. Cardiac acoustics: rapid; no abnormality in rhythm but slightly rapid; no adventitious sounds.

Electrocardiography was resorted to to detect any abnormality in the myocardial condition in rickets, wherein Ca and P metabolisms are greatly upset, particularly as we are realising the importance of Ca-ion in relation to myocardial efficiency.

Electrocardiogram.—Right ventricular preponderance. Low voltage.



Case 1: Electrocardiograph

Respiratory System.—No distress. Shallow breathing. Lungs normal.

Nervous System.—Nil particular.

Lymphoid tissue.—The superficial lymphatic glands can be felt, but are not very much enlarged.

Skeletal System.—The spine shows no deformity. The head shows bossing of the parietals and frontals. No craniotabes elicited. The anterior fontanelle is open and wide. There is flattening of the bridge of the nose. The thorax is deformed with a typical rachitic rosary and Harrison's sulcus on either side. The chest is pigeon-shaped with a narrow subcostal angle. The limbs show widened ends of bones. The femur appear laterally curved.

Urine.—Reaction acid. No sugar, albumin or ketones. No organised casts.

an established habit which is only the outcome of a taste for refinement in food articles. The same desire finds expression in the increasing displacement of jaggery by white sugar and on the continent, of brown bread by white bread. It is also the common practice to cook rice or vegetables in excess of water and drain away the latter. This results in considerable losses of minerals and vitamins. Storage of vegetables, even for a few hours, results in loss of vitamin C. Frying in ghee destroys the vitamin A of the latter. Use of cooking soda also destroys vitamins. Many such defects can be catalogued and while some of these can be overcome by education and propaganda, it is admittedly difficult to get rid of others.

Fortification of Foods - the role of the Chemist

One welcome trend during recent years has been the tendency to fortify foodstuffs with constituents in which they are lacking. Thus, iodized salt is used for preventing goitre. Infusion of synthetic vitamin B₁ into polished rice or white bread* and of vitamin A into hydrogenated oils and the irradiation of infant foods are some instances. The chemist has played a great part in the production of foodstuffs synthetically. There are however many, even among the well-educated, who have entirely erroneous notions of the work of chemists in food industries. They suspect the chemist and his work and imagine that he is there only to provide some sort of synthetic food, inferior to the natural one and enabling the manufacturer to make a more handsome profit. This view is highly unfair for it is very largely due to the food chemist that we can get to-day such pure, wholesome and appetizing foods at such moderate prices. The chemist's greatest contribution is perhaps the large-scale synthesis of practically all the known vitamins. The production of "tabloid" and other concentrated foods has become possible only through his efforts. The value of these findings on the food problem in times of emergency such as the one we are now in, is indeed immense.

The problem of the best use of food presents therefore both individual and community aspects. Food should be so chosen that the health and efficiency of the individual is secured in the highest degree and at the same time, it should be used with such regard to the economics of food supply that the possibility of optimal nutrition shall be brought within the reach of a steadily increasing proportion of the population and shall finally be the birth-right of all.

* We just read about the appointment of an expert committee by the Ministry of Food in England for technical control in the incorporation of calcium and vitamin B₁ into wheat flour before bread-making.

METHEDRINE

'Methedrine' (d-methylisomyn), the issue of which is announced by Burroughs Wellcome & Co., Snow Hill Buildings, E. C. 1, is a recently discovered synthetic compound belonging to the sympathomimetic amine group. Given orally, it produces a prolonged rise of blood-pressure and stimulation of the central nervous system, especially of the cerebral cortex. 'Methedrine' is particularly indicated in the treatment of narcolepsy; it may also be of value in certain depressive psychopathic conditions, as an analeptic in barbiturate poisoning, and as an antispasmodic in the X-ray visualisation of the gastro-intestinal tract.

The compound is issued for oral administration as 'Tabloid' 'Methedrine' Hydrochloride, 0.002 gramme, in bottles of 25 and 100.

Motion.—Fat analysis: Total fat 59.7%.

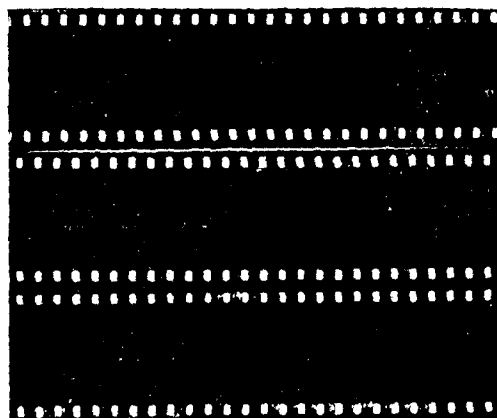
Unsoaped fat 33.4%, Free fatty acid 17.94%, Neutral fat 15.46%.

The child died two days after admission and therefore no further study was possible.

2. Ramakrishnan: 1½ years old, male, Hindu, Non-Brahmin.

Admitted for constipation alternating with diarrhoea and wasting.

A marasmic child with rachitic changes in the skull, thorax and long bones.



Case 2: Electrocardiograph

Electrocardiogram.—

L. I: Right ventricular preponderance.
Sinus Rhythm.
T + P +

L. III: T O Q +

Urine.—Acid reaction. No albumin, sugar or ketone bodies.

Blood.—Serum calcium 11.4 mgms. per cent.
R. B. C. 4.3 millions. W. B. C. 9,200 per c. mm.
C. I. 0.8

Differential count.—Polymorphs 47%, Lymphocytes 47%, Monocytes 3%, Eosinophiles 2%, Basophiles 1%.

Treatment.—6-9-1940 to 29-9-1940. Diet built up.

1. Yeast Gr. 10.
2. Calci Lactas Gr. 15.

Fiat pulvis Three; one t.d.s.

3. Adexolin (G. L.)
m. 3 b. d.

4. Fortossan "Ciba" grains 20 per day in three doses (supplying thus phosphorus).

Progress.—Body weight.

Date: -	6-9-1940	...	8 lbs.
	20-9-1940	...	10 lbs.
	26-9-1940	...	11 lbs.
	6-10-1940	...	13 lbs.
	13-10-1940	...	14 lbs.

3. Raman. 1 year and 3 months old, Male, Hindu, Brahmin. Lower middle class.

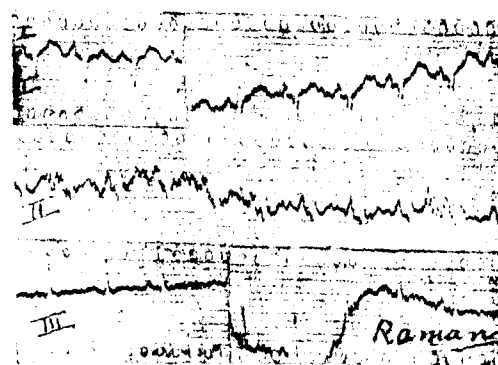
Fed by the mother and supplemented by condensed milk till date of admission into the hospital.

Showed marked skeletal changes characteristic of rickets (Kahn of mother's blood: negative).

Blood.—Serum calcium 9.76 mgms. per cent Plasma phosphates 3.3 mgm. per cent.

Electrocardiogram.—sinus rhythm; Right ventricular preponderance.

T + + ±



Case 3: Electrocardiograph

Treatment.—29-9-1940 to 13-10-1940.

Breast feeding discontinued, mixed diet gradually introduced.

1. Cod liver oil externally to the abdomen.
 2. Yeast gr. 10.
 3. Calci Lactas gr. 15.
- Fiat pulvis Three; one t.d.s.
4. Adexolin m. 3 b.d.
 5. Fortossan "Ciba" grains 20 per day.

Progress.—

Date.		Weight.
29-9-1940	...	12 lbs.
2-10-1940	...	14 lbs.
6-10-1940	...	14 lbs.
13-10-1940	...	14 lbs.

The majority of rachitic children observed were in their second year. Their diet has generally been rich in starches and poor in fat.

Regarding the influence of cereals on rickets, recent work has brought out a number of points. The rachitogenic action of cereals has been ascribed to (a) the non-availability of the phosphorus in the phytic acid of the cereals (Bruce and Callow); (b) the precipitation of the calcium of the cereal and other parts of the diet by the phytic acid, after which it could not be absorbed (Harrison and Mellanby). According to Krieger and others, the phosphorus of the phytic acid was available to a certain extent even without Vitamin D but much more so when it was given; and again, the availability of phytic acid phosphorus was affected by the Ca : P ratio of the diet. "Day has found that citrates promote calcification when given with a cereal ration of high calcium and low phosphorus content, but not when given with a purified diet."

Poverty, defective hygiene and prolonged breast feeding have been remarkably constant features in the cases seen by the writer, i.e. in the poor patients generally seen in the hospital.

Delay in sitting up, dentition, presence of a tendency to bronchitis, diarrhoea and convulsions (tetany) have been found in the cases studied. A large head with frontal bossing and patent anterior fontanelle, rickety rosary, pigeon chest and Harrison's sulcus, enlarged epiphyses, deformed long bones and protuberant abdomen with enlarged liver and lax ligaments are features appreciated clinically in every moderate case of rickets. All the skeletal changes are not met with in every case seen but changes sufficient enough for diagnosis are constant. The characteristic skeletal changes are found in the lower end of the ulna as observed by X-ray.

Haemorrhages in Liver Diseases

Dr. B. C. Bose, M.D., D.Sc., D.T.M. (Paris),
L.R.C.P.S. (Edin.)

Haemorrhagic tendencies in liver diseases, more particularly in obstructive jaundice cases, are quite well-known to surgeons. In a very recent statistics, Illingworth has recorded 442 deaths out of 4,000 operations of which 13.8% are from secondary haemorrhage. It has often been regretted that there did not exist any reliable test to foresee this condition nor any prophylactic treatment to avert this catastrophe.

Thanks to the Danish and American Workers, these diagnostic and therapeutics gaps appear to have been filled up. Quick's method of estimating prothrombin in blood has enabled us to measure the latent defects of blood coagulation mechanism, and prophylactic administration of Vitamin K has definitely enabled us to tide smoothly over these difficulties.

Let me first record some clinical observations on what I have just stated above.

Case I. A man of 26 entered our ward in 1939 with a clear cut history of a catarrhal type of jaundice with certain signs of pancreatitis. On the 3rd month of his illness he showed haemorrhagic tendencies—ecchymosis all over body.

Investigations:—

- (a) Exam. of stool—biliary deficiencies, increase of fatty acids, complete absence of stercobilin.
- (b) Blood—Bilirubin 289 mg. (Photometric method of Dognon).
Cholesterol 0.90 gm.
- (c) Urine—gamlin + + +
Urobilin + +
albumin gm. 1.6
- (d) Induced galactosuria—abnormal figures found.
- (e) Coagulation time—54 mins.
Bleeding time—5 mins.
Signs of capillary fragility—absent.
Blood prothrombin level—low.

After 2 blood transfusions, some temporary improvement was noticed but fresh ecchymosis reappeared.

At this stage concentrated Vitamin K—(Hoffmann La Roche, Basel) 5 c.c. I. M. was given.

In about 2 days' time a remarkable amelioration of the condition was noticed and a second injection of Vitamin K with sodium taurocholate *per os* was given.

Already on the 5th day Coagulation time came down to 27 mins. in place of 54 mins. On the 14th day, prothrombin level rose to 75% from the initial 18%. No more haemorrhage occurred since the 1st injection of Vitamin K. Signs of biliary retention however remained and for which cholecystostomy with drainage was performed and the patient gradually recovered to normal.

Case II. A woman (elderly) Jaundice for 2 months, physical signs of cancer of the head of the pancreas. Haemorrhagic tendency greatly improved after administration of Vitamin K.

Physiology of Blood Coagulation:—We know that Prothrombine + Thromboplastine + Ca = Thrombine. Fibrinogen + Thrombine = Fibrin.

Of these factors, Ca is the least important in liver disease; neither in hypo, nor in hyper Calcemia is there any trouble of blood coagulation.

As to fibrinogen, the case is different. According to Lian and Facquet fibrinopenia is the rule in catarrhal jaundice. Still these authors believe that fibrinopenia alone does not suffice to provoke coagulative defects.

So we have to turn our attention to the other two factors—prothrombin and thromboplastin.

The mortality in rickets is from respiratory complications and diarrhoea. Skeletal deformities, when slight, clear up under adequate treatment, but if advanced may persist (Rickety pelvis). The main complications are in the respiratory and alimentary systems, and tetany.

The differential diagnosis of early rickets is sometimes a matter of difficulty but, in all, cases have to be made out from (1) infantile paralysis, (2) spinal caries, (3) hydrocephalus and (4) hereditary syphilis.

TREATMENT OF RICKETS.—Prophylactic treatment consists in breast feeding upto 9 months. Small doses of cod liver oil or a concentrate like adexolin or irradiated ergosterol have to be supplied to the baby.

In the second year of an infant's life milk upto 1½ to 2 pints must be ensured.

The diet of the pregnant and lactating women must be a balanced one.

Curative Treatment consists of (1) *Rest:*—This prevents and corrects deformities. Open air life is advised and light splints may be used as also massage.

(2) *Diet:*—Milk (1½ to 2 pints). Fruit juices, fish and yolk of egg allowed according to age. Avoidance of cereals. In this connection it is interesting to note the value of phosphorus therapy [Fortossan (Ciba)] in the treatment. This substance has been additionally used in the cases 2 and 3, and the results have been recorded by serial X-ray pictures of long bones. In the absence of contemporary controls the exact amount of good done by phosphorus (Fortossan "Ciba") is difficult to assess. Anyhow, the writer has gained the impression that a phosphorus-containing adjuvant is definitely indicated in the treatment of rickets in addition to the standard therapeutic lines.

(3) *Administration of Vitamin D:*—Five thousand international units of Vitamin D (equals 2½ ounces of cod liver oil or minims 120 of Halibut liver oil) per day would be necessary. As diet deficient in vitamin D is likely to be lacking in Vitamin A also, a concentrate preparation containing vitamins A & D like "Adexolin" (G. L.) or "Haliverol", (P. D. & Co.) is used. Pure cod liver oil is avoided because it tends to produce diarrhoea which is easily set up in rachitic babies.

Overdosage of Vitamin D (signs of premature ossification of bones and renal calcification) must be avoided.

(4) *Anaemia:*—Iron is used as ferri-et-ammonium citras. In cases where there is diarrhoea, yeast may be tried alone or along with liver.

(5) *Deformities:*—These may require orthopaedic operations later on.

Acknowledgements

The writer is greatly indebted to Dr. G. R. Dinker Rau, M.D., Superintendent and First Physician, Government Stanley Hospital, Madras, for permitting him to study and report on all the above cases, which were in his wards.

Messrs. Kemp & Co., Ltd., (Representatives of "Ciba" products) placed at the writer's disposal quantities of Fortossan "Ciba" for trial.

References

1. Vitamin content of Indian foods and its relation to the state of nutrition of the population—Bashir Ahmad—*Journal of the Indian Medical Association*. Vol. X No. 1.
2. Diseases of Infancy and Childhood—Wilfrid Sheldon (1936).
3. Calcium and phosphorus in the development of Rickets—*British Medical Journal*—14th December 1940 (page 839).

Quick's Method for Estimation of Prothrombine:—Plasma (decalcified and oxalated) and optimum quantity of CaCl_2 and thromboplastin in excess are added. In this case, coagulation time, i.e. prothrombin time is in direct relationship to the quantity of prothrombin present in blood.

Excess of Thromboplastin:—Quick has demonstrated that after adding a certain quantity of the brain of rabbit, no further addition of thromboplastin would materially accelerate the coagulation time.

Thus with thromboplastin in excess, prothrombine alone is variable and on its level will depend the coagulation of blood.

Technique of the reaction:—Thromboplastin is made out of rabbit's brain pulp .3 gm. of powder + 5 c.c. of isotonic saline + .1 c.c. of sodium oxalate solution; centrifuge for 3 mins. and separate the supernatant milky liquid portion.

Test:— Oxalated plasma1 c.c.
Thromboplastin1 c.c.
 CaCl_2 1 c.c.

Shake and put in water bath at 37°C. Note the moment when coagulation just appears; coagulation time 30 seconds represents 75% prothrombine level. Compare these figures with normal plasma figures and work out the percentage of prothrombin present in blood.

The prothrombin level in normal plasma is taken up as 100%. When it is below 25% Quick considers it as a very dangerous zone.

Prothrombine level in haemorrhagic diseases:—Normal in haemophilia (Thromboplastin is low here).

Prothrombin level in liver diseases:—In all parenchymatous diseases (cirrhosis, icterogenic hepatitis) there are both prothrombo and fibrinopenia. The above two defects prove hepato-cellular deficiency.

In obstructive jaundice (from stenosis of common bile duct or inflammation or mechanical obstruction) there is considerable prothrombinopenia. It is thus clear that evaluation of prothrombin level is both diagnostic and prognostic.

Vitamin K:—is liposoluble and present in our food stuffs, green leaves of cereals, spinach, cabbages, tomatoes, epicarp of rice, yolk of egg, carrot, etc.

It is taken through our food stuffs, absorbed from the intestine in the presence of bile salts, goes to the liver and regulates the prothrombine formation there.

Thus in hepatitis there is non-utilisation of Vitamin K.

In obstructive jaundice there is non-absorption because of absence of bile salts, sodium tauro and glycocholentes.

Lately it has been synthesised in America and also by Mr. Iyengar, All-India Institute of Hygiene. 5 mg. is the usual dosage for an intramuscular injection.

Conclusion:—Evaluation of prothrombine level permits to foresee haemorrhagic tendencies in liver diseases and in jaundice. Administration of Vitamin K can cure such troubles if irreparable damage has not already taken place in liver parenchyma.

(Read at the 8th session of Bengal Provincial Medical Conference at Dum-Dum, 24 Perganas, on 13-4-41).

The place of Drugs in the treatment of Pulmonary Tuberculosis in Tea Garden Hospitals

● Dr. A. C. Karmaker, L.M.F., A.M.O.

(Tipling Tea Estate, Hooghrija P.O.)

In the absence of any truly specific chemotherapeutic agent, three classes of therapy may be considered.

1. Chemotherapy.
2. Vaccine Therapy.
3. The Relief of Symptoms.

Chemotherapy

The substances which are most in vogue for this purpose are preparations of (1) Gold and (2) Calcium.

1. **The Use of Gold Salts:** Sanocrysin is the preparation most used and should be given in gradually progressive doses starting with 0.01 gm., intravenously and increasing it to 0.025, 0.05, 0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4 and 0.5 gm., at weekly intervals. 0.5 gm. should be the highest dose. In every case the dose should be regulated in respect to temperature and the general condition of the patient. Not more than 4-5 gm. of Sanocrysin should be given.

Toxic symptoms that have been found after its injection include rise of temperature with malaise and sometimes rigor. The urine may contain albumen but it soon passes off. Vomiting and diarrhoea may occur and among other signs skin rashes, neuritis, oedema of the face and eyelids have been observed.

To avoid these it is better to begin with small doses and at increasing intervals. In such cases the treatment should be suspended for time being, to be restarted again when the symptoms have subsided.

In favourable cases there is complete disappearance of Tubercle Bacilli from the sputum, general improvement of clinical picture and marked lowering of temperature.

If Sanocrysin cannot be tolerated or if the veins are indistinct Allochrysin can be injected intramuscularly starting with 0.05 gm., 0.1 gm., and finally 0.2 gm. The later dose is given every 5th. day for 2-3 months.

Solganol and Solganol B., are oily preparations similar to the above. Treatment commences with a small dose such as 0.01 gm. in cases where there is no temperature and in cases where there is temperature the dose should be reduced to 0.0001 gm. Later the doses are increased gradually and injections are given bi-weekly.

Krysolgan and Lopion are other preparations of gold and have same action and uses.

The way in which gold acts in tuberculosis is not known.

The cost of a full treatment with one or other of these preparations will be about Rs. 65/- and this must be borne in mind when considering their use.

2. **The Use of Calcium:**—This may be given by mouth, intramuscularly or intravenously with the idea to replenish the calcium content of blood which is said to be low in tuberculosis and that this low level favours the growth and activity of Tubercle Bacilli. Intravenously it is given in 10% solution beginning with 2 c.c., and increasing up to 10 c.c. (Calcium gluconate is usually chosen for this purpose).

Vaccine Therapy

Up to the present, results of vaccine therapy have been disappointing, but cases do occur in which it is of value. The success depends upon proper selection of dose and interval between doses. The preparation used, as a rule, is tuberculin which is now administered in so small a dose that no reaction occurs. The dose is then repeated at short intervals and increased gradually.

The following scheme has been recommended :

1st. dose	...	1/4000	million of a milligram.	} given bi-weekly.
2nd "	...	1/2000	" "	
3rd "	...	1/1000	" "	
4th "	...	1/500	" "	
5th "	...	1/200	" "	} given weekly.
6th "	...	1/100	" "	
7th "	...	1/50	" "	

This treatment should be continued at least for 5 months.

Here again the cost of treatment must be taken into account, a full course costing about Rs. 75/-.

The Relief of Symptoms

(a) **Wasting and Debility:**—These symptoms are best treated by cod liver oil. It is given by mouth beginning from 1 dr. thrice daily up to 2 oz. daily by emulsion or 0.5 to 2 c.c., of a 3% solution of sodium morrhuate may be injected subcutaneously once or twice a week.

Cod liver oil and malt 1 dr. thrice daily may also be given.

(b) **Cough and Expectoration:**—For the clearing of a foul cough with profuse sputum creosote is of value. This may be given in doses of minim 2-3 thrice daily after food either with cod liver oil or in capsules. It should be discontinued if gastric disturbances or haemoptysis occur.

Guaiacol may be used as a substitute for creosote either internally or hypodermically.

Guaiacol carbonate and theocol are better borne than creosote.

An ineffective dry cough may be checked by the exhibition of a sedative linctus containing codeine phosphate or heroine hydrochloride.

(c) **Night Sweats:**—These may be treated by a pill containing zinc oxide gr. 2, extract belladonna siccum gr. 1/4 given at night or subcutaneous injection of Accoline 0.02 gm., once or twice daily.

(d) **Haemoptysis:**—Slight haemoptysis in which the sputum is only streaked requires no treatment.

Moderate haemoptysis with expectoration of 3 or 4 oz. of blood requires active treatment. The patient should lie on the side from which the blood is coming. Normal horse serum 10 c.c., intramuscularly or 10 c.c. of a 10% solution of calcium chloride intravenously should be given. Later calcium is to be given by mouth. If the bleeding is severe and the patient cannot be calmed hypodermic injections of morphine sulphate gr. 1/4 should be given. Morphine may be given up to 1 gr. in 24 hours. All foods should be taken cold and an aperient (magnesium sulphate dr. 2) should be given.

(e) **Diarrhoea:**—Large doses of bismuth with Dover's powder or starch enemata with or without opium may be administered.

The appetite may be improved by the administration of a tonic containing nuxvomica and gentian.

It is a great pleasure for me to express my gratitude to my Chief Dr. K. P. Hare who has kindly gone through the paper and made valuable suggestions and alterations.

* Read in the monthly meeting of Tingri Valley Branch A. I. M. L. A. on 24-11-40.

HEXOESTROL

Recent work on synthetic oestrogenic compounds has established the clinical value of Hexoestrol (4:4'-dihydroxy-a-diphenyl-n-hexane), a substance closely related to diethylstilboestrol both in constitution and physiological action, but somewhat less toxic than the latter and consequently less liable to produce undesirable side-effects.

The compound is now issued by Burroughs Wellcome & Co., Snow Hill Buildings, London, E.C. 1, as 'Tabloid' Hexoestrol, a sterile solution in oil for intramuscular injection. It may be used in all conditions in which oestrogen therapy is indicated, and is particularly valuable in the symptomatic treatment of the menopausal syndrome and in atrophic conditions of the vagina.

'TABLOID' PHENOBARBITONE AND BROMIDE

The simultaneous administration of potassium bromide and phenobarbitone is a valuable therapeutic measure in the treatment of nervous diarrhoea and other types of gastrointestinal dysfunction in which sedative and antispasmodic medication is indicated. These medicaments are effectively and conveniently combined in 'Tabloid' Phenobarbitone and Bromide, a recent addition to the range of products issued by Burroughs Wellcome & Co., Snow Hill Buildings, E.C. 1. Other conditions in which it may be prescribed include Epilepsy and allied disorders involving hyperexcitability of the motor cortex, delirium tremens, nervous insomnia and thyrotoxicosis. The product presents Soluble Phenobarbitone gr. 1/3, with Potassium Bromide, gr. 7 and is issued in bottles of 25 and 100.

MYOCRISIN

(For the chrysotherapy of rheumatoid arthritis)

A copy of the second edition of a booklet on *Myocrisin* has been sent to us by the makers, Pharmaceutical Specialities, (May & Baker Limited, Dagenham).

Myocrisin is sodium aurothiomalate, a compound with a gold content of 50 per cent. which has been found valuable in the treatment of rheumatoid arthritis and other conditions, effecting complete cure in 50 per cent. of the cases treated in the early stages. In the later stages where the condition is of long standing *Myocrisin* has been found to arrest the progress of the disease, increasing movement and reducing pain.

Copies of this booklet, which contain full information on the application of *Myocrisin* in the various conditions for which gold therapy is indicated, may be obtained by members of the medical profession on application to May & Baker (India) Limited, 11, Clive Street, Calcutta.

Treatment of Uncomplicated Cases of Malaria in Tea Garden Practice*

● Dr. B. N. Chowdhuri, L.M.F.

(Monkhooshi Tea Estate, Hoogrija P.O., Assam)

The best way of treating malaria is still unknown. It is both simple and difficult. The causes are, the nature of infection and tendency to relapse, the dosage and period of use of the well-known and well tried specifics. Success of the treatment depends upon patient's power of resistance, natural immunity and conditions of exposure to infection. Many new drugs are supposed to be specifics and various new methods suggested, but no drug found superior to quinine. Some other drugs prescribed for treating malaria are Cinchona febrifuge, Plasmoquin, Atebrin, Quinacrin, Euquinine, etc.

Quinine sulphate, hydrochloride and bi-hydrochloride are the common salts of quinine generally used. Sulphate is the cheapest and effective in the routine treatment.

Mode of administration of Quinine :—Most reliable method is to give quinine in solution by mouth. When patient cannot retain it in the stomach owing to persistent vomiting due to gastric irritability, when

there is urgency and when oral administration fails to check the fever, quinine can be given by intramuscular injection. It can also be given intravenously in cases with heavy infection and cases of M. T. infection producing pernicious symptoms.

Dosage of Quinine :

For average Indian males	20 grains in a day in two doses.
" " females	15-18 " " "
Children 5-10 years	12-15 " " "
" 2-5 " "	7-10 " " "
" ½-2 " "	4-6 " " "
Under 6 months	3 " " "

Children tolerate quinine better than adults.

Time to administer Quinine :—As a rule bowel should be opened first with three grains of calomel followed by one ounce of saturated solution of mag sulph before administration of quinine. Some recommend quinine to be given in perspiring stage and not during hot or cold stage and some when the temperature is normal. I think it is always best to administer as soon as the diagnosis is made and not to wait till the temperature is normal. Quinine acts well in both the times. Purgatives can also be given conveniently during the treatment.

Duration of Quinine administration necessary :—Some authorities suggest a long course of treatment and others a short course. The advantage with the long course of treatment is the least number of relapse.

The long form of treatment suggested by Dr. P. B. Bhattacharya is :

	First period i.e. during acute stage and till 2 days after temperature has been normal	Second period i.e. fortnight after the 1st period, for 5 days	Third period i.e. 2-6 weeks after the 2nd period
Average Indian Male	7 gr. T.D.S.	7 gr. B.D.	7 gr. per day.
Average Indian female	5-6 " "	5-6 " "	5-6 " "
Children of 5 to 10 years	4-5 " "	4-5 " "	4-5 " "
Children of 2 to 5 years	2-3 " "	2-3 " "	2-3 " "
Children half to 2 years	1½-2 " "	1½-2 " "	1½-2 " "
Infants under 6 months	1 " "	1 " "	1 " "
Pregnant Females	2½-3 " 5-6 times daily	2½-3 " 3-4 times daily	2½-3 " B.D.

It is practically impossible to follow this line of treatment in Tea garden practice, because no patient will co-operate. It can be mentioned here that long form of treatment may lower down the defensive power of the human body.

The short course of treatment is preferable and suitable for simple and uncomplicated cases treated in out-patient department.

The appropriate dose is given twice daily for 5 days or till the temperature has been steady at normal level and then twice daily for 4 more days. Stop quinine for a week, then give twice daily for 5 days. After a week's rest give twice for another 5 days. If there be relapse the whole course of treatment may be repeated. But it is not possible to treat all the patients for at least 3 weeks for lack of co-operation. Some patients stop to take quinine as soon as the temperature becomes steady. In those cases treatment for at least 5 days should be given. The main idea in the short form of treatment of 5 days is to treat the patients and not merely to kill the parasites directly.

The standard treatment with quinine and alkalies devised by Sinton is as follows :

- Calomel - gr. 3 } at night.
Sodi bicarb. - gr. 6 }
Saturated solution of Mag. Sulph. - oz. 1 in the morning.
(1) Alkaline mixture Sodi citras - gr. 40.
Sodi bicarb. - dr. 1.
Liq. ammon acetatis dil. - dr. 1.
Tr. Hyoscyamus - m. 20.
Aqua - ad. oz. 1.
(2) Quinine mixture Quinine Sulph. - gr. 10.
Acid Sulph. dil. - m. 20.
Aqua - ad. oz. 1.

Two doses of quinine mixture per day, each dose being preceded by a dose of alkaline mixture, are given for at least 5 days. The doses are meant for adults, and for children the doses should be according to age. In addition to the above Plasmoquin 0.02 gm. may be given after food. In Tea garden practice it is not always possible to treat all the out-patients with quinine being preceded by alkaline mixture. In those cases it has been found even simply treating with 2 doses of quinine mixture daily does good.

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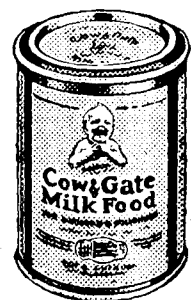
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DEXTROSOL

Further particulars and booklet "Advances in Treatment with Dextrosol" from
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"THE FOOD OF ROYAL BABIES"

The only trouble in administering quinine earlier is that it aggravates headache and general distress. For headache the following powder may be given.

Aspirin	... gr. 10.
Dover's powder	... gr. 5.

It should be mentioned here that in some cases re-attack of fever may not be due to true relapse but due to re-infection. Because, relapses (of a good percentage) are found among the cases treated both by long and short course of treatment.

Euquinine :—It is also a quinine derivative and is sparingly soluble in water with little taste. It can be given to children in the form of powder. Dose—3 to 15 grains.

Cinchona Febrifuge :—It is cheaper than quinine but its action is variable and it produces nausea. Dose—10 grains twice daily for 10 days.

Quinine in Pregnancy :—Quinine in therapeutic doses does no more harm in pregnancy than malaria itself. Sedative drugs e.g., bromides and opium can be given in cases of threatened abortion.

Drugs other than Quinine :—*Atebrin* or its English equivalent *Quinacrin* or the Italian equivalent *Crinodona* acts on all species of malaria and its clinical cure is earlier. It can be well tried in cases of quinine idiosyncrasy, Black-water fever and pregnancy without any hesitation. Yet *Atebrin* is no better than quinine. In some cases several re-actions occur, e.g., icteric tint on skin, conjunctiva and urine which last for considerable time and in some cases bowel and mental disorders. It should not be given either with quinine or *Plasmoquin*.

Dose :—1 tablet of 0.1 grm. three times daily for five days in cases of adults and healthy children above 8 years old. Children 4 to 8 years—0.2 grm. in a day and children up to 4 years 0.1 grm. in a day.

Plasmochin :—It destroys and acts on sexual parasites of all species and also asexual forms of B. T. and Q. T. It is useless to prescribe *plasmochin* for curative purpose and is best given as an after treatment in malaria to rid the patient's blood of gametocytes.

Dose :—1 tablet of gr. 1/6, 2-3 times daily for 3 to 5 days; children up to 5-8 years 1 tablet 1-2 times daily; children up to 4 years 1 tablet daily.

General Management :—Rest in bed during fever, ice bag on head during hot stage and ice to suck to relieve nausea, vomiting and thirst. To lower down the hyperpyrexia sponging and baths should be tried.

Diet :—Light liquid diet should be given till the temperature comes to normal.

Acknowledgement

I am much indebted to my chief Dr. K. P. Hare who has kindly gone through the paper and made valuable suggestions and alterations.

References

1. A Hand Book of Tropical Diseases : Dr. P. B. Bhattacharya.
 2. Malaria and common diseases in Assam : Dr. N. Barroah.
 3. Modern treatment of malaria : Dr. A. Viswanathan, *Ind. Med. Jr.*, May 1940.
 4. Quinine and Malaria—Cinchona Institute, Amsterdam—W, 1940.
- * Read in the monthly meeting of Tingri Valley Branch, A. I. M. L. A. on 29-12-40.

Electricity in the Treatment of Diseases

● Dr. P. K. Guha, L.M.F.

Electrotherapy has gradually come into use in our country since the earlier part of this century though it was prevalent over the continent as early as 1842.

In the treatment of diseases we use electricity chiefly in two forms "Current" and "Ray". Electric current supplied for our domestic use cannot be used for any of these purposes, but when modified by different transformers it can serve all our therapeutic requirements. Power of a current is based on two things : Voltage (pressure) and amperage. That the domestic current cannot be used in treatment is because neither its voltage of 220 nor its amperage is suitable for the purpose of treatment. We require currents of very low voltage as 6, 10, or 12, or of very high voltage as 40 to 100 thousand volts. The conversion can be done very easily by passing any current through converters, interrupters, transformers, etc.

The therapeutic forms of electric current are, faradic, galvanic, galvano-faradic, sinusoidal, long wave and short wave diathermy and static. Of these faradic, galvanic and sinusoidal currents are of low voltage, and diathermy is of voltage as high as 50 thousand and more.

By faradic current we can test reaction of degeneration, i.e., the condition of the muscles in cases of muscular atrophy and paralysis, and also we can treat these conditions successfully. So long as the response is not entirely lost, that is, the muscles have got some amount of vitality as yet, cases of facial paralysis and paralysis due to peripheral neuritis, infantile paralysis and paralysis after some cerebral lesions can be treated with success.

The uses of galvanic current are more extensive. It can be used for all purposes as faradic. Besides it can be used in cases of arthritis, osteo-periosteitis, fibrositis, etc., where ionisation is useful. Chronic ulceration of the uterine os and urethra, ulceration of the middle ear and nose, which usually do not improve by other treatment, respond very well to galvanic ionisation. Epilation of the eyelashes, or hairs in various skin diseases can be also managed well by galvanic current. In atonic dyspepsia and constipation I have found galvanic current yielding definite improvement.

Galvano-faradic and sinusoidal currents are chiefly indicated in muscular paralysis, when the muscles are markedly degenerated and a very slow and gradual treatment is necessary.

Diathermy is a high frequency current of very high voltage and as such it does not produce any muscular contraction, and thus there is no feeling of electric shock when we apply this current to human body. The effect of this current is manifested by production of heat, which is proportionate to the amount of the current and inversely proportionate to the size of the electrodes and thickness of the tissues. By this current we can heat up a tissue of any thickness to various degrees with no destruction of the tissues. If necessary, the heat may be produced to such an extent as may cause slight destruction on the surface or destruction of deeper tissues as well. This is called Electro-Coagulation. Production of heat comes only under Medical Diathermy, and tissue destruction comes under Surgical Diathermy.

By Medical Diathermy, then, we can treat any condition where heat and hyperaemia is indicated. As such we can apply it very well in any painful condition: acute or chronic painful condition of the muscles, bones and joints, inflammation of the uterus and its appendages, pleura, lungs and peritoneum, neuralgias, and pain after extraction of tooth are relieved and cured by a few exposures. General Diathermy, by which we can raise the temperature of the whole body to 104 F. and beyond, is said to be of much benefit in chronic nerve diseases, about which I have no personal experience.

By Surgical Diathermy we can cleanly remove a tumour, coagulate the piles, cauterise a cervical erosion, and make a bloodless operation on the tonsils. Plastic operations done for aesthetic purpose are better done by diathermy than by knife as the former leaves only a very fine scar which is almost imperceptible.

About the "Ray" used in treatment of diseases there are only a few which are in actual practice. These are Violet Ray, or High Frequency Ultraviolet Ray, Infrared Ray and X-Ray. Therapeutic uses of Green, Blue and Red Rays are also established, but I have not got any experience of these rays.

To us Indians, the therapeutic effect of the Rays is nothing new. From time immemorial we have been worshipping the greatest source of heat and all rays, the sun, as *Dhacantar* and *Sarvapaghuha*. The sun does not only remove darkness but destroys all evil, kills all germs and brings life and vigour to all on whom it shines. We have got ultraviolet and infrared ray in the solar spectrum. We can certainly derive the therapeutic effect from the sun, but the atmospheric condition does not allow these rays to come to the surface of the earth in proper dose and in all places. For these reasons artificial sources have been devised which we can utilise in any place and in any condition.

Violet ray produces a very superficial and temporary hyperaemia and may be of relief in painful conditions. It is used mostly by the "dressing saloons" to produce a rosy blush on the cheek and face.

Infrared ray is a heat ray and this also produces hyperaemia much more than the violet ray but much less in comparison with diathermy. It can produce a heat on the surface up to half an inch but never can heat through and through. This is indicated in any painful condition to produce a temporary relief. Neuralgias, lumbago, sinusitis, pimples and boils may be cured by a few exposures. As a preliminary to ultraviolet exposure, faradic and galvanic treatment of the muscles, infrared ray exposure from 15 to 20 minutes is of much value.

Ultraviolet ray has a wide range of indications, but the conditions in which I have found it of definite value are rickets, glandular tuberculosis, bone tuberculosis, and indolent ulcers. Rhinitis, tonsillitis, bronchitis, asthma, pleurisy, neuritis, neuralgias, alopecia, eczema, folliculitis, etc. may also be treated by this ray though with varying results.

Everyone realises the utility of X-Ray in diagnosing cases which are obscure, or any internal condition of the body which we cannot visualise. It is now needless to discuss its range in diagnosis, as we know there are probably very few parts of the human body which X-Ray cannot explore satisfactorily. X-Ray treatment is done by Ray of much higher voltage than the diagnostic ray. It is chiefly useful in the malignant condition of bones and soft tissues, but it is also indicated in benign

(Continued from page 195)

Our Bombay Letter

Dr. Jivraj Mehta on Recruitment

The talk of the day amongst the medicos and the public in Bombay is about the devastating criticism made by Dr. Jivraj Mehta on the policy of the vested interests of the I.M.S., at the meeting convened recently by the Surgeon-General of Bombay to consider why there was not sufficient response from medical graduates in the presidency in accepting the emergency commission in the I.M.S. and from medical licentiates for I.M.D. Dr. Mehta hit well and hit hard on the unabashed favouritism shown to the Anglo-Indian Section of the Service as against the humiliating treatment meted out to the Indian medical recruits. It is but just and fair that the few excellent suggestions made by Dr. Mehta should be accepted by the powers-that-be in case they are serious in getting sufficient number of young Indian men for military service.

In this connection, the Licentiate section of the profession feel that Dr. Mehta could have expressed their disabilities as well, speaking as he did on behalf of the "Indian medical men". But probably in his zeal to disclose the "painful sting" experienced by the graduates—a class to which he belongs—in being treated like the "pariahs of the Indian Medical Service", he naturally did not remember those who have all along been treated as "pariahs of the profession" by those very persons who now complain of being treated as such by the High Command of the Indian Medical Service. How true in the case of your proteges, Dr. Jivraj, are your words "As you sow, so you reap"!

The Licentiates are, however, not much worried that Dr. Mehta did not hold their brief on that day, because human nature being what it is, he can only know where the shoe pinches him. They, however, are one with the medical profession in showering on him their praises and in acknowledging their gratefulness for so ably championing the cause of the "Indian medical men"!

Yellow Fever Menace

A conference of medical practitioners was recently convened in the city by the Health Officer under the presidency of the Surgeon-General. It was pointed out that due to increasing aerial transport, the menace of yellow fever may threaten the city at any time. Investigations are being carried out at the Hallikine's Institute, Parel, on cases of fever with jaundice which have been prevalent in Bombay. As such, the authorities have asked for the co-operation of the medical practitioners in notifying to them every such case, so that arrangements may be made for their correct diagnosis. It was also explained that the Government of India had stocks of large quantities of preventive vaccine by which immunity against yellow fever could be secured by inoculation.

tumours, uterine haemorrhages, splenomegalies, leukaemias, eczema, folliculitis and very many skin conditions.

(Read at the 8th Session of the Bengal Provincial Medical Conference at Dum-Dum, 24 Parganas on 13-4-'41.)

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Hexamine as a Biliary Antiseptic

Hexamine is said to possess no antiseptic property by itself except by the liberation of its formic aldehyde molecule when brought into contact with an acid media. Till the recent advent of chemotherapeutic drugs it was largely used to disinfect the urine in pyelitis and cystitis after making the urine acid if it is not already so. On this basis rested its common use as an urinary antiseptic of choice.

But its use as a biliary antiseptic in the infections of gall-bladder, although often attended with clinically brilliant results, is more or less empirical since there is no agreement as to how it acts and in what form it is excreted in bile. In fact, Cushny failed to find any trace of formaldehyde in bile after the oral administration of the drug, and was therefore sceptical as to its antiseptic property.

We are now indebted to Dey and others¹ who confirm the clinical findings by a series of well-considered and planned laboratory investigations in a case of post-operative biliary fistula. Their experiments were conducted with a view to study the following points :

- (1) Whether after administration of hexamine or sulph-anilamide, bactericidal or bacteriostatic properties develop in the bile, and
- (2) Whether the effect can be studied *in vitro* with Hexamine.

They have found that the action of Hexamine on infected bile or biliary passages was, like sulphanilamide, bacteriostatic, and that it was highest against streptococci, least against *B. coli* and intermediate against *B. typhosus*. It is very interesting to note that their *in vitro* experiments remarkably correspond with the actual *pH* findings of the samples of bile after oral administration of hexamine.

As in chemo-therapy, so in hexamine therapy of gall-bladder infections maximum degree of bacteriostasis is best obtained in an alkaline medium. This again justifies the time-honoured use of potassium or sodium citras in combination with hexamine in the treatment of biliary infections.

It sets us thinking however why it should be otherwise in cases of bacterial infections of the urinary tract where a prior medication with acid sodium phosphas is necessary to render urine sufficiently acid as to make the chemical action of hexamine effective as an antiseptic. The reputation of sulphanilamide preparations in urinary infections rests on their ability to produce an optimum degree of bacteriostasis. Whether this is true of hexamine in urinary tract infections deserve detailed investigation, and if the bacteriostatic action is more effective than its bactericidal action, much of the sickness which the patient feels while his urine is rendered acid by artificial means can be totally avoided. We hope that Dey and his colleagues would take up this question and elucidate the matter whether prior acidification of urine is necessary for hexamine to be effective as an urinary antiseptic and whether it produces little or no bacteriostasis in the urinary fluids.

¹ Ind. Jr. of Med. Res., April 1941, pp. 271-274.

SPECIAL ARTICLES

The Technique and Interpretation of Tuberculin Skin Test

By the Tuberculosis Association of India

Von Pirquet Test

The Pirquet Test is very simple and is suitable for field surveys, whenever the more difficult Mantoux Test is not practicable.

The test is made on the flexor surface of the forearm, about two inches below the elbow. The skin is first cleaned with alcohol and allowed to dry. A small drop of Old Tuberculin is then applied to the skin and several well separated parallel scarifications are made through the drop, taking care to penetrate the epidemic layer down to the corium and to avoid bleeding. The arm should be exposed for at least 15 minutes to give time for absorption and to allow it to dry. No covering should be put over the scarified area.

The reaction should be read at the end of 48 hours and if negative, preferably again at the end of 72 hours. The Pirquet Test is interpreted in the same way as the Mantoux Test.

Mantoux Test

The Mantoux Test is more accurate than the Pirquet Test in that a known amount of tuberculin can be given and the dose be increased if desired. For this reason, a slightly larger number of reactors can be obtained than with the cutaneous test of Pirquet. It has been estimated by various workers that the Pirquet Test is equivalent to 0.1 c.c. of a dilution of a strength between 1 in 1,000 and 1 in 10,000 administered intradermally, so that when a 1/10,000 dilution is used for the intradermal test, the Pirquet Test may be more sensitive if a reliable brand of Old Tuberculin is used. By the intracutaneous method, any two successive tests, done in graded doses, can be compared, which is not possible with the cutaneous test. The International Standard Tuberculin is recommended for general use.

Technique of the test:—Use International Standard Tuberculin or preferably the new Purified Protein Derivative (P. P. D. the active principle of O. T. isolated in pure form).

Use sterile Normal Saline or 0.2% Carbolic Saline for dilution in such a way that 0.1 c.c. contains the desired dose. Dilutions should be kept in the ice chest when not in use and never be employed when more than a fortnight old.

Dilutions:—The following dilutions are generally employed 1/10,000, 1/1,000, 1/500, 1/100, 1/10.

A well fitting 1 c.c. syringe graduated in 1/20 c.c. with a short bevelled intradermal needle is required. The syringe, once filled, holds fluid for 10 tests, the needle being merely wiped with cotton wool soaked in absolute alcohol or flamed between the injections. It is well to have a separate syringe for each dilution.

Injection:—Clean the front of the forearm with rectified spirit and allow it to dry. Stretch the skin by holding the forearm taut from below, select a point away from superficial veins, insert the needle into the dermis at the smallest angle possible with the bevel upwards and inject 0.1 c.c. of the dilution. The injection, if properly made, should raise a white bleb, on the surface of which the hair follicles are easily visible. Subcutaneous injections should be avoided as they may give rise to a general febrile reaction. No controls are necessary up to 1/100 dilution. In case of 1/10 dilution, it is better to keep a control with glycerinated veal peptone broth of the same strength, to avoid a typical non-specific reaction.

Dosage:—The initial dose may be either 0.1 c.c. of 1/1,000 dilution which is sometimes called the 'standard dilution' or 0.1 c.c. of 1/500, except for persons:—

- suspected of having bone, lung, joint, ocular and skin tuberculosis or in children with visible cervical nodes, ulcerations or discharging sinuses;
- who have had a recent haemoptysis;
- who are home-contacts of tuberculous patients;
- where their attendance for further tests can be guaranteed;
- who are very young infants, in which case it is advisable to employ 1/10,000 dilution or even higher.

Whichever dilution is employed, read the result at the end of 48 and 72 hours. If negative, employ the next stronger dilutions at the last visit (*i.e.*, at the end of 72 hours). The delay between two tests should not be more than a week. In a large majority of cases, a dilution of 1/100 suffices, but if this gives a negative result, a dilution of 1/10 may be employed as the practicable upper limit, as stronger solutions are likely to give non-specific reactions. In case of doubtful reactions, employ the next stronger dilution to settle the result. No test is complete without using the 1/100 dilution, especially for mass investigations, in cases where 1/1,000 dilution has given negative results.

Reading of the reaction:—Reactions should be read at the end of 48 hours. If negative, they should be re-examined at the end of 72 hours, and if still negative, at the end of 96 hours, when a final opinion might be put down. To read, hold the arm slightly flexed at the elbow and in good light and look across the arm rather than down on it.

A test should be recorded as positive or negative to the given dilution. A positive reaction is indicated by oedema and redness around the site of inoculation. When in doubt, feel with the fingers and gently palpate between them. Its intensity is judged by the amount of oedema (its extent and thickness) and redness and by any elevation of temperature and malaise, if they occur. The area of redness is usually less important than that of oedema. In measuring the area of erythematous infiltration of the skin (as judged by palpating between two fingers), reactions with the greatest diameter below 5 mm. are regarded as negative. Four categories or degree of intensity of the reaction are considered *viz.*:

SUPPLEMENT TO THE INDIAN MEDICAL JOURNAL

MADRAS

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Regulations of the University of Bombay for the Admission of Medical Licentiates into its M.B., B.S. Course.

The following regulations were passed by the Syndicate of the Bombay University at their meeting held on 29th June 1940.

But it appears that no sufficient provisions have yet been made at the Grant and G. S. Medical Colleges, with the result that except two all other applicants have to be rejected for want of accommodation. This is certainly unfair. The Deans of these Medical Colleges could have easily found room to admit at least ten licentiates each if they had recommended to the authorities the reduction of admission of regular students to this extent.

In any case, it is up to the Government of Bombay and the Bombay Corporation to provide sufficient accommodation for the admission of at least 10 Licentiates in each of the Medical Colleges under their respective management. The Madras Medical College has provision for 20 seats for the licentiates, and certainly it would be easier for the two medical colleges at Bombay to make a similar provision, instead of evading the issue of admissions on the plea of want of accommodation. We trust that the Deans of the Bombay Medical Colleges would deal with this question with sympathy and consideration. Let not what has been given by the right hand be snatched away by the left.—*Ed.*

- A holder of the L.C.P.S. diploma will be permitted to appear for the First M.B., B.S. examination after putting in one term's attendance at an institution affiliated to this University for teaching the courses of studies leading to the degrees of M.B., B.S. provided that he has passed previously:—
 - an examination in Mathematics of the Matriculation standard of a Statutory Indian University; and
 - the Intermediate examination in Science of this University with Biology as an optional subject or an equivalent examination of another recognized University in the subjects of Biology, Physics and Chemistry—the subject of Chemistry to include as a part of the syllabus for the said examination Organic Chemistry both theoretical and practical.
- A holder of the L.C.P.S. diploma will be admitted to the Second M.B., B.S. examination, provided that since passing the First M.B., B.S. examination, he has put in at a Medical

College affiliated to this University attendance for one medical term in the subjects of the Second M.B., B.S. examination.

- A holder of the L.C.P.S. diploma who has passed the Second M.B., B.S. examination and who has been engaged in medical studies at a Medical College affiliated to this University for at least 24 months after passing the First M.B., B.S. examination will be admitted to the Third M.B., B.S. examination provided he produces a certificate signed by the head of the College testifying to his having:—
 - attended a course of lectures, demonstrations and practical work extending over one term in Pathology, Bacteriology and Elementary Parasitology;
 - completed a course of lectures and clinical demonstrations in Ophthalmology;
 - performed at least ten autopsies as a *post-mortem* clerk;
 - administered Anaesthetics on, at least, ten occasions;

- (e) personally conducted twenty labour cases (including the six cases previously conducted during the L.C.P.S. Course) in a recognised Maternity Hospital or in the lying-in wards of a general hospital under the supervision of a qualified member of the medical staff ;
- (f) received adequate instruction in the following subjects :—
- (i) Fever (at a recognised hospital for infectious diseases)
 - (ii) Psychopathology and Mental diseases (at a recognised hospital for mental diseases)
 - (iii) Dermatology
 - (iv) Tuberculosis
 - (v) Dental Surgery
 - (vi) Radiology
 - (vii) Venereal diseases
 - (viii) Diseases of Ear, Nose and Throat
 - (ix) Orthopaedics
 - (x) Diseases of infancy and childhood

ASSOCIATION NOTES

(The Proceedings printed below refer to the Committees and Branches of the A. I. M. L. A., unless otherwise stated)

Standing Committee Resolutions. *Resolution No. 1:* "Resolved that a sum of Rs. 1-6-0 (Rupee one and annas six only) be sanctioned to Dr. S. P. Nath, Secretary, Dibrugarh Branch (Assam) for his contingent bill for the months of March and April 1940, as per decision of the Standing Committee in pursuance of Circular No. 2 dated February 1941, of the General Secretary." Votes:—for 15; against—nil. The above resolution is hence passed unanimously.

Resolution No. 2: "Resolved that the amendments to Bye-laws, Nos. 8, 10 and 31 of the Rules and Regulations of A. I. M. L. A., as per majority decision of the Standing Committee, A. I. M. L. A., in pursuance of General Secretary's Circular No. 3 dated Feb. 13, 1941 be accepted."

	Bye Law No. 8	Bye Law No. 10	Bye Law No. 31	Sec. 5 Organisation
Votes for	10	10	10	Deleted <i>vide</i> President's letter No. 48 dated 25-2-41 as it does not come under resolution No. 15 (b) of Bombay Conference.
.. against	1	1	1	
.. neutral	2	2	2	
Total	13	13	13	

Bye Law No. 8: Add after "office bearers of the Association" the words "Excepting General Secretary and Managing Editor, *Indian Medical Journal*."

Bye Law No. 10: Delete "and Branch".

Bye Law No. 31: Delete the second and third sentences and substitute: "The total print order shall not exceed what may be sanctioned by the Finance Committee."

Property Committee Resolution: "Resolved that sanction is hereby accorded to the purchase of Post Office 5 Years' Cash Certificates for the face value of Rs. 8,000 (Rupees Eight Thousand only) and that the amount required for the purpose may be withdrawn from the current account with the Imperial Bank of India, Delhi. The certificates may be purchased through the Imperial Bank of India, Delhi, and placed in safe custody with the said Bank." Three voted for and one against this resolution. Therefore I accord my approval to the majority opinion. I hereby direct that necessary action be taken in pursuance of the resolution.

(Sd.) A. D. MUKHERJI, President, A. I. M. L. Assn.

Tinsukia (Assam): (1) The third annual general meeting held on 23-2-41. Nine doctors present. Dr. K. M. Ganguli was voted to the chair.

Proceedings of the last meeting read and confirmed. The Secretary read the 3rd annual report of the working of the Branch for the last year which was approved.

The monthly accounts for the months of Dec. 1940 and Jan. 41 as well as the accounts for the whole year were passed. Resolved that all members should pay one rupee to the Provincial Branch and one rupee for the Local Branch for this year.

Office-bearers for 1941-42: Drs. K. M. Ganguly—President, S. C. Barooah—Secretary, *Managing Committee Members:* Drs. N. B. Kar, D. C. Chakravarty, S. N. Dutta, G. C. Sil, U. R. Dey.

An interesting case note on jaundice was read by Dr. U. R. Dey of Mukalbari T. E. and everybody took part in the discussion.

(2) Ordinary meeting held on 18-5-41 with Dr. A. B. Mukherjee on the chair. Six members present.

Proceedings of the last meeting were read and confirmed. Drs. T. C. Das and B. C. Sen were duly enlisted as members of the Association.

Read the following circulars from the Prov. Secretary: Nos. 3, 4, 5, 8, 9 and letter No. 187 dated 24-4-41 and the Secretary was advised to take necessary action. Monthly accounts for the months of March and April 1941 were passed for payment.

Passed the T. A. bill of the Secretary which was duly approved by the members.

Dr. S. C. Barooah demonstrated a case of Guinea-worm, treated with ichthyol application for 3 days over the whole area, alum by mouth with the result that the worm died and was removed easily. The worm was preserved and shown to the members.

Tingri Valley (Assam): (1) Monthly meeting held on 16-2-41 with Dr. D. D. Sarma Baruah in the chair.

Circular Nos. 3 and 4 from the Prov. Secretary and Circular No. 1 from the General Secretary were read and filed.

Dr. D. D. Sarma Baruah described his experience of the last conference held in Bombay.

Dr. S. C. Dutta demonstrated a case of osteomyelitis treated with sulphonamide.

Dr. K. P. Hare described a case of tetanus treated successfully with a huge quantity of anti-toxin. He explained the treatment of tetanus with evipan sodium and M. & B. 693, described by the Bryant and Fairman in "Transactions of the Royal Society of Tropical Medicine and Hygiene" Vol. 34 No. 2.

It was suggested that typhus fever is prevalent in Assam and it was confirmed by Dr. Hare by demonstrating the carrier of tick-typhus "*Rhipicephalus sanguineus*" in this locality.

(2) Monthly meeting held on 23-3-41 with Dr. K. C. Bhattacharjee on the chair.

The Secretary read out the resolutions of the last conference held at Bombay.

Circular Nos. 5 and 6 of the Prov. Secretary were read and filed.

Circular No. 8 of the Prov. Secretary was read and discussed.

Resolved unanimously that the Prov. Secretary be requested to arrange a deputation to wait on the Secretary, Indian Tea Assn., Calcutta, to convince him to recommend the *Tea Estate Medical Service Scheme* to the members of their Association. In case the Committee is unwilling to do so, they may be requested to show us the favour of at least publishing the scheme in one of their circulars for information of individual authorities.

This meeting further suggests that Dr. A. D. Mukherjee, the President of our Association, be requested to kindly lead the deputation.

Circular No. 9 of the Prov. Secretary was read and the members fully supported the ideas.

A discussion took place amongst the members on the effect of M. & B. 693 treatment on the death rate of pneumonia cases in this circle. It was stressed that the importance of nursing in this disease was as important now as it was before the introduction of M. & B. 693.

(3) Monthly meeting held on 27-4-41 with Dr. K. C. Bhattacharjee in the chair.

Proceedings of the last meeting were read and confirmed.

Resolved that the contingent bill amounting to Rs. 3/- only for the months from January to March 1941 be passed.

Dr. K. C. Bhattacharjee spoke on the management of first stage of normal labour. Dr. M. A. Hazarika spoke on the management of second stage of normal labour. Dr. H. Bhowmik spoke on the management of third stage of normal labour. The members described their experiences on the above subjects. Dr. K. P. Hare concluded the discussion.

Gauhati (Assam): (1) Monthly meeting held on 29-3-41. Dr. J. N. Roy presided. Eleven members present. Minutes of the last meeting were confirmed.

Minutes from the Prov. Secretary, Assam, were read and Circulars from the following resolutions adopted.

Resolution No. 8: It is resolved that the individual authorities be approached for garden medical services.

Resolution No. 9: That a deputation be sent to the Government of Assam, that Dr. A. D. Mukherjee, President of our Association be requested to lead the deputation with the following members: Drs. G. S. Das, S. C. Borua, L. K. Borua, K. Rahaman, B. De, B. Ganguli and R. M. Kar. The purposes of the deputation are: (1) to stop opening of a second medical school in Assam, below university standard. (2) Raising the standard in the B. W. Medical School as early as possible. (3) Improving the status of the S. A. Ss. in Assam.

Resolution No. 4: The idea is very much appreciated but the members are of opinion to wait till the end of war from economic consideration.

Proposed that the next monthly meeting be held at Palashbari and the members there be requested to arrange accordingly.

(2) Monthly meeting held on 4th May 1941. Dr. P. C. Dwara presided and 8 members present.

Minutes of the last meeting were confirmed.

Scientific discussion about dysentery took place. Contingent bill for Rs. 8-10-0 was passed for payment.

Dhubri (Assam): Meeting held on 15-4-41 with Dr. S. M. Ray in the chair. Ten members present.

Resolved that the following office-bearers be elected owing to the transfer of the President: Drs. S. M. Ray—President, Muhammad Ali—Secretary, S. M. Das Gupta—Asstt. Secretary, P. Ghosh—Auditor. *Executive Committee:* Drs. N. K. Purkayastha, R. Uddin Ahmed, Miss L. P. Das, and above 4 members.

Resolved that Drs. Wazid Ali and Muhammad Ali be elected as the honorary organisers of Goalpara and Dhubri sub-divisions respectively to encourage our licentiate non-members to enlist themselves as members.

Dibrugarh (Assam): General Body meeting held on 4-5-41 under the presidency of Dr. P. K. Bose. Six members present.

Minutes of the last meeting read and confirmed. Branch accounts from January to April 1941 were checked and passed.

Circular No. 3 of the Prov. Secretary was read and all the members were requested to contribute to the Prov. fund at one rupee per head.

Circular No. 4 of the Prov. Secretary was read together with the proceedings of the Standing Committee meeting of this Branch held on 30-3-41 on the same subject and this meeting agrees with the opinion of the Standing Committee.

Dr. Md. K. Rahman opened a discussion on the treatment of tertiary syphilis and the recent advances, and the members present took part in it.

Mymensingh (Bengal): (1) Meeting held on 12-3-41. Six members present.

Unanimously resolved that Rai Saheb Dr. P. C. Ray be elected President for the ensuing Provincial Conference to be held at 24 Parg.

Many resolutions to be moved at the ensuing Provincial Conference were drafted: (1) the introduction of an All-India Medical Register, (2) the need for doing away with the medical school education, (3) the introduction of I. Sc., as the minimum qualification for admission into the medical schools in the interim period, (4) stopping of quackery in the country, (5) advising the Government of Bengal to give effect to their decision of observing Sundays and other six days in the year as holidays in the out-door departments of hospitals.

Unanimously resolved to request Dr. A. N. Ray to remain as Provincial Secretary for the next year.

(2) Annual General Meeting held on 20-3-41. Thirty-two members present. Dr. H. Bagchi presided.

Annual report on the working of the Branch was read and passed.

Office-bearers for 1941-42: Drs. H. Bagchi—President, R. K. Sengupta, M. N. Ray, S. C. Bhowmik—Vice-Presidents, B. Chaudhuri—Secretary, J. Ahmed—Asstt. Secretary, M. C. Aich—Auditor. *Executive Committee:* above office-bearers and Drs. A. Talukder, D. C. Roy, M. S. Rai Chaudhuri, S. Patranavis and Mr. K. D. Ghosh, student. Any three members will form quorum for an executive committee meeting.

Dr. K. Talukder read a paper on Ophthalmology in General Practice.

Dr. A. Talukder and Dr. B. Chaudhuri sought the co-operation of the members in improving the Branch and thereby raising the status of the class.

Annual Report: Dr. B. Chaudhuri, Secretary of the above Branch, submitted the annual report of the branch for the year 1940-41 and in the course of the report mentions that it was possible for the Branch to enlist 34 new members, thus making up a total of 80 members for the year 1940-41. He also pointed out the creditable part played by the Branch representatives in the last Provincial and Annual Conferences of the Association. Concluding he appealed to the leaders of the profession to remove once for all the retrograde compartmentalism which is sapping the vitality of the medical profession of this land.

BRANCH FINANCE

Expenditure:		Rs.	A.	P.
M. O. to Treasurer	...	128	0	0
Contingencies	...	90	12	3
Propaganda Work	...	25	0	0
Local Expenses:— (Printing, socials, etc.)	...	22	0	0
Total	...	265	12	3

Income:		Rs.	A.	P.
Association Subscriptions realised by Branch Secretary	...	128	0	0
Contingent Bills paid by Treasurer	...	58	5	0
Contingencies to be realised	...	32	7	3
Propaganda Bills to be realised	...	25	0	0
Local Subscriptions	...	22	0	0
Total	...	265	12	3

(3) Meeting held on 6-4-41. Twelve members present. Dr. M. N. Roy was in the chair.

The following resolutions were passed unanimously:

In view of the fact that medical licentiates held so long the posts of anaesthetists of the Campbell Hospital, Calcutta and of the Mitford Hospital, Dacca and discharged the work of the anaesthetists with efficiency and credit, this meeting learns with deep concern that the Government of Bengal have proposed to appoint medical graduates for these posts in place of medical licentiates and strongly protest against this proposal of the Government for which there is no justifiable cause.

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This meeting further requests the Government to retain the services of medical licentiates for these posts and thus do justice to this section of medical men whose loyal and faithful service has been highly commended even by the highest officials of the Government of India.

Resolved further that the Prov. Secretary, Bengal Branch, be requested to wait upon the Hon'ble Minister in charge of Public Health with a deputation to place this and other important matters before him.

Contingent bill for Rs. 32-7-3 from 1-4-'41 to 31-3-'41 was scrutinised and passed.

(4) Meeting held on 28-4-'41. Eleven members present. Dr. M. N. Roy was in the chair.

Dr. B. Chaudhuri gave a description of the proceedings of the last Bengal Provincial Medical Conference.

It is resolved that this Branch gladly acknowledges the privilege given to it for holding the next Provincial Conference at Mymensingh, and fervently hopes that it will get the full co-operation of all the sister branches in order to make the conference a successful one. (Passed).

Propaganda Bill for Rs. 25/- was scrutinised and passed.

(5) Meeting held on 11-6-'41. Five members present. Dr. D. C. Roy was proposed to the chair.

Proceedings of the last Provincial Conference was read.

Considering the local condition, this Branch holds the view that the attempt of creating public opinion through the channels suggested by the Prov. Secretary as per resolution No. 9 of the last Provincial Conference will only jeopardise the position of the licentiates. So this Branch respectfully informs the Prov. Secretary of its inability to hold such meetings. (Passed).

It is again resolved to apply all possible means to recruit new members for our Association.

Nadia (Bengal): (1) Monthly meeting held on 9-3-'41. Six members present. Dr. K. R. Roy occupied the chair.

Minutes of the last meeting read and confirmed.

Accounts were examined and passed.

Circular No. 6 from G. S. was discussed.

Circular No. C/11/41 and letter from the Prov. Secretary were discussed and resolved that: (a) this Branch nominates Dr. Ahibhusan Mukherjee and Dr. Kulajaranjan Ray as President and Secretary respectively, (b) regarding other items of the Prov. Secretary's letter, the Secretary has been empowered to reply suitably.

Scientific discussion took place.

Following were elected delegates to the ensuing Provincial Conference: Drs. K. R. Roy, B. C. Ghosh, J. N. Roy, P. C. Chakravarty, D. Basu, D. K. Bagchi, and D. N. Adhikary.

(2) Monthly meeting held on 6-4-'41 with Dr. K. R. Roy in the chair. Ten members attended.

Minutes of the last meeting read and confirmed.

Accounts were examined and passed.

This meeting learns with deep concern the recent decision of the Government of Bengal, appointing medical graduates for the posts of anaesthetists in the Campbell Hospital, Calcutta and Mitford Hospital, Dacca, in the place of medical licentiates who have held these posts so long with efficiency and credit, and strongly protests against the present proposal of the Government.

This meeting further requests the Government to retain the services of medical licentiates for these posts and thus do justice to this section of medical men. A copy of this resolution be forwarded to the P. H. Minister, Surgeon-General, Bengal, Prov. Secretary and various newspapers.

This meeting congratulates Dr. A. Malik on his successful election as a member of the Bengal Legislative Assembly.

(3) Monthly meeting held on 11-5-'41. Eight members present. Dr. K. R. Roy was elected to the chair.

Minutes of the last meeting read and confirmed.

Accounts were examined and passed.

Dr. Adhikary gave a description of the last Bengal Provincial Conference.

Clinical discussion took place.

(4) Monthly meeting held on 8-6-'41. Eight members attended.

Minutes of the last meeting read and confirmed.

Accounts were examined and passed.

Resolutions passed in the last Provincial Conference were discussed.

Report of the Prov. Secretary was read.

Prov. Secretary's call for a public meeting was read and resolved to do so.

Clinical discussion took place at the end.

Calcutta (Bengal): (1) General Meeting held on 14-3-'41. Dr. K. P. Sen was voted to the chair. Forty-five members were present.

Minutes of the last meeting were read and confirmed.

That the contingent bill of Rs. 52-2-0 be passed and the General Secretary be requested to pay back the advance of Rs. 10-2-0 given by Dr. S. Dutt, Secretary of the Branch, in this bill.

That a sub-committee of the following be formed to consider the resolutions to be moved at the Bengal Provincial Conference: Drs. K. P. Sen, A. M. Malik, A. N. Roy, A. D. Mukherji, J. B. Sen, Biren Bose and S. K. Dutt (convenor).

Rai Sahab Dr. P. C. Roy was elected as President of the Bengal Provincial Conference and Dr. A. N. Roy as Prov. Secretary.

Resolved that a Recruitment Board consisting of the following with powers to co-opt be formed: Drs. Biren Bose (convenor), P. K. Guha, Rabi Banerjee, A. N. Roy, and S. K. Dutt.

Resolved that this meeting strongly protests against the proposal of the Government of Bengal to appoint anaesthetists graduates instead of the passed students of the medical have been doing the work of anaesthetists from the very inception of the hospitals with credit and loyalty and request the Government of Bengal to appoint anaesthetists from amongst the members of medical licentiates. Resolved further that rities immediately with a view to revise the proposal of the Government.

(2) General meeting held on 6-4-'41. Dr. K. P. Sen was in the chair. Forty members present.

Minutes of the last meeting confirmed.

Various resolutions to be moved at the coming Provincial Conference were passed.

Resolved that the following members will represent this Branch at the Bengal Provincial Conference at Dum-Dum: Drs. K. P. Sen, A. D. Mukherji, S. K. Dutt, and Sudhir Choudhuri.

Prov. Secretary's letter was read. Resolved that in view of the fact that the medical licentiates held so long the posts of anaesthetists of Campbell Hospital, Calcutta and Mitford Hospital, Dacca and discharged their work with efficiency and credit, this meeting learns with concern that the Government of Bengal have proposed to appoint medical graduates for these posts in place of medical licentiates, and strongly protests against this proposal of the Government for which there is no justifiable cause. This meeting further requests Government to retain the services of the medical licentiates for these posts and thus do justice to this section of medical men.

Resolved further that the Prov. Secretary be requested to wait upon the Hon'ble Minister, Public Health, with a deputation to place this and other important matters before him.

Resolved that the contingent bill of Rs. 46-3-3 be passed and the General Secretary be requested to pay back the advance of Rs. 12-3-3 made by Dr. S. Dutt, Secretary, in this bill.

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(3) General meeting held on 3-5-'41. Dr. A. D. Mukherji was voted to the chair. Forty members present.

Minutes of the last meeting read and confirmed.

Contingent bill of Rs. 35-12-0 be passed and the G. S. be requested to pay back the advance of Rs. 9-12-0 made by the Secretary in this bill.

The Secretary requested the members to recruit new members.

24 Pargis (Bengal): (1) Annual general meeting held on 4-10-'40 with Dr. S. Sircar in the chair. Thirteen doctors attended.

Proceedings of the meeting held on 1-9-'40 were read and confirmed. Annual report was read and adopted by the members.

Office-bearers for 1941:—Drs. H. C. Pal—President, L. M. Dutt and S. Sircar—Vice-Presidents, K. K. Dutt—Secretary and Treasurer, S. N. De—Jt. Secretary. **Managing Committee:** Drs. K. K. Dutt, P. K. Das, K. K. Sengupta, Bhowmick, T. M. Chakravarty, R. N. Sengupta, S. K. Bannerjee, J. N. Chatterjee, M. N. Roy and R. Banerjee.

Resolved that the delegates to the Ahmedabad Conference will be amongst the following members: Drs. K. K. Dutt, K. L. Paul, S. N. De, S. N. Mitter, and P. K. Das.

Resolved to form a Provisional Reception Committee with the members of the Branch for the next Provincial Conference and Drs. H. C. Pal, K. K. Dutt and S. S. Sircar were provisionally elected to be Chairman, General Secretary and Treasurer respectively. It was resolved that the contingent bill be passed.

Annual Report 1940: The Secretary, Dr. K. K. Dutt, pointed out that there are only 16 Branches in Bengal out of 27 districts and that this showed several big districts are entirely out of the Association picture. He suggested that every district should have a Branch of the Association. Commenting on the scheme of re-organisation of Public Health of the Province he said that it is a very deserving scheme barring some defects like the inadequate pay, restriction of private practice and differentiation between medical and Public Health activities. He warned the members that they must work to remove the defects before it was too late. The Branch held 9 meetings during the year and conducted a scientific demonstration in June 1940. He also referred to the urgent need for abolition of medical schools in Bengal, and for co-operation with the Provincial Branch in this matter. The total collections were Rs. 76-5-3 and expenditure Rs. 62-11-3, leaving a balance of Rs. 13-10-0.

(2) Monthly meeting held on 16-3-'41 with Dr. S. Sarker in the chair. Thirteen members attended.

Proceedings of the last meeting held on 9-2-'41 were read and confirmed.

Resolved that this meeting strongly protests against the proposal of the Government of Bengal to appoint medical graduates as anaesthetists of the Campbell and Mitford Hospitals instead of the medical licentiates who had held these posts since long with credit. This meeting requests the Government to revoke the discriminatory order and appoint the licentiates as anaesthetists and vindicate justice to them.

Resolved that the contingent bill be passed.

(3) Monthly meeting held on 4-4-'41 with Dr. A. D. Mukherjee in the chair. Seventeen members attended.

Proceedings of the last meeting held on 16-3-'41 were read and confirmed.

Resolved that Dr. Sarat Sasi Sarker be elected as Chairman, Dr. K. K. Dutt as General Secretary and Dr. S. N. De as the Treasurer of the Reception Committee of the Provincial Conference.

Resolved that Drs. S. Sarker, K. Dutt, S. N. De, S. N. Mitra and K. K. Sengupta will form a Working Committee for the Provincial Conference.

Burdwan (Bengal): (1) Meeting held on 25-3-'41 with Dr. S. C. Maitra in the chair. Nineteen members attended.

Read and confirmed the proceedings of the meeting held on 27-1-'41.

Dr. T. C. Chakravarty proposed that all the members should be informed about the election of the delegates to the 8th Provincial Conference to be held at Dum-Dum on the 12th and 13th April 1941. Further resolved that a meeting be held on 2nd April 1941.

Contingent bill for Rs. 2-12-9 was passed.

Unanimously resolved that a minimum monthly subscription of annas four only be fixed for the members.

(2) Meeting held on 2-4-'41. Dr. Monmathanath Sen was voted to the chair. Twenty-four members present.

Read and confirmed the proceedings of the last meeting.

Resolved that the following members be elected as delegates for the ensuing Provincial Conference: Drs. S. C. Maitra, T. N. Chakravarty, C. S. Chatterjee, A. M. Bhattacharjee. Resolved that Mr. Mahitosh Ganguli, 4th year student of the R. M. School, be elected as a representative of the students to attend the Dum-Dum Conference as a visitor.

Resolved unanimously that a committee of all the local members do constitute the Working Committee of this Branch. Further resolved that the said committee will meet at least once a month invariably and more often when required. The time and date for these meetings are permanently fixed as 7-30 p.m. and 7th of every month unless changed by resolution of this committee.

Unanimously resolved that at least 3 meetings be held during the year.

Unanimously resolved that the subscription from the members be collected by the Treasurer of this Branch during Working Committee meetings.

(3) Meeting held on 6-4-'41 with Dr. A. P. Banerjee in the chair. Eight members present.

In view of the fact that medical licentiates held so long the posts of anaesthetists of Campbell Hospital, Calcutta and Mitford Hospital, Dacca and discharged the work of anaesthetists with efficiency and credit, this meeting learns with concern that the Government of Bengal have proposed to appoint medical graduates for these posts in place of medical licentiates and strongly protests against this proposal of the Government for which there is no justifiable cause. This meeting further requests the Government to retain the services of the medical licentiates and thus do justice to this section of medical men whose loyal and faithful service has been highly commended even by the highest officials of the Government of India.

Contingent bill for March 1941 amounting to Rs. 4-0-3 be sanctioned.

(4) Meeting held on 7-5-'41 with Dr. S. Maitra in the chair. Eleven members present.

Read and confirmed the proceedings of the meetings held on 25-3-'41 and 6-4-'41.

Resolved that the consideration of the resignation letter from Dr. Gunananda Mukherjee, Hon. Secretary of the Branch be postponed *sine die*.

Resolved that the Secretary is requested to issue notices with agenda henceforward.

Contingent bill for Re. 0-9-9 was passed.

Chittagong (Bengal): Monthly meeting held on 24-3-'41 with Dr. D. C. Das Gupta in the chair. Fifteen members present.

Read and confirmed the proceedings of the last meeting.

This Branch has the pleasure of electing Dr. K. P. Sen of Calcutta as President of the ensuing Provincial Conference to be held at Alipore, 24 Pargis, during the next Easter holidays.

This Branch also expresses its grateful thanks to Dr. A. N. Roy for the successful work done by him as Secretary of the Provincial Branch during 1940 and requests him to continue in his office this year also.

This Branch records its emphatic protest against the proposed appointments of anaesthetists in Campbell and Mitford Hospitals from medical graduates in preference to the claims of the passed students of those institutions who have been carrying on such duties most efficiently so far. This Branch requests the Provincial Secretary to forward this protest to the concerned authorities with an appeal and deputation.

This Branch resolves that Dr. D. C. Das Gupta and A. C. Nag be elected as delegates for the Provincial Conference at 24 Pargs.

Resolved that a sum of Rs. 10 be remitted to the Secretary of the Provincial Conference as donation from this Branch.

Dacca (Bengal): (1) Monthly meeting held on 10-11-40. Seven members present.

Proceedings of the last meeting read and confirmed.

G. S. circular 22 read and circular 23 read and replied.

The Secretary was authorised to issue notice for the realisation of arrears of local subscriptions. The members were requested to contribute to the War Fund.

(2) Monthly meeting held on 8-12-40. Nine members present.

Proceedings of the last meeting read and confirmed. G. S. circular 24 read; 25 read and accepted and 26 read.

(3) Monthly meeting held on 12-3-41. Five members present.

Proceedings of the last meeting read and confirmed.

The delegates narrated the proceedings of the Bombay Conference.

A scheme was devised to increase the members of the Branch.

T. A. Bills of the delegates were passed for payment.

(4) Monthly meeting held on 23-2-41. Eight members present.

Proceedings of the last meeting were read and confirmed.

Circular No. 1 was read.

The Secretary's appeal was approved.

Regarding the letter from the Secretary, 24 Pargs., it is resolved that any resolution from this Branch will be forwarded to the Prov. Secretary together with the names of the delegates. Scientific papers if any and financial help may be sent to the Secretary, 24 Pargs.

(5) Emergency meeting held on 24-3-41. Four members present.

Proceedings of the last meeting read and confirmed.

Resolved that Drs. K. P. Sen and A. N. Roy be elected as President and Secretary of the Province in the ensuing Conference at Dum-Dum.

Resolved that Drs. D. N. Basak, A. C. Roy, K. N. Basu, R. K. Banik, J. N. Sen Gupta (any three members) may attend as delegates to the Provincial Conference. Drs. D. N. Basak and S. K. Guha be requested to attend the scientific section.

The Secretary be requested to reply to the letter of the Prov. Secretary dated 6-3-41. Regarding financial help the Secretary was advised to do the needful.

Resolutions to be proposed in the next Provincial Conference were passed.

(6) An Extraordinary meeting held on 6-4-41.

This meeting learns with concern that the Government of Bengal have proposed to appoint medical graduates for the posts of anaesthetists in place of medical licentiates and strongly protests against the said proposal. Further this meeting requests the Government to retain the services of the medical licentiates for these posts and thus do justice to the licentiates.

Resolved that the Prov. Secretary be requested to wait upon the Hon'ble Minister, Public Health, with a deputation to place this and other important matters.

Resolved that this meeting expresses its deep sorrow at the sudden and untimely death of Dr. Hem Ch. Dasgupta who was not only a good physician but also by exemplary character and independence of views made himself respected and renowned as one of the foremost man in our Branch. Resolved that a copy of this resolution be sent to his family as a token of heartfelt condolence to them.

Contingent bills for January, February and March 1941 were passed for payment.

Rangpur (Bengal): Meeting held on 15-4-41. Six members present. Dr. J. C. Lahiry was voted to the chair.

Proceedings of the last meeting read and confirmed.

Office-bearers for 1941: Drs. J. C. Lahiry - President, J. N. Das Gupta - Vice-President, N. N. Mukherji - Secretary.

Bombay. (1) General Body meeting held on 27-1-41. Dr. W. B. Narayan Rao presided.

Minutes of the last meeting were read and confirmed.

Report of the Reception Committee was also read and adopted.

Resolved that the letter from the Municipal Corporation be recorded.

Resolved on the proposition moved and seconded by Drs. U. S. Rao and Mastaker respectively, that a deputation of the Branch should wait on the Surgeon-General, Bombay to acquaint him with the grievances of the S. M. S. officers in the province and to suggest the starting of a lottery in order to procure funds for the hospitals and medical education in the province.

Resolved to arrange for an excursion trip.

There was a lively and most interesting debate on the sulphonamide therapy.

Regarding the letters from Drs. Motiwale, Bhagwat and Chanda, the meeting is emphatically of the opinion that the Reception Committee is not bound to pay the charges to the delegates, if they arrange for their accommodation in hotels without the knowledge of the Reception Committee.

(2) Managing Committee meeting held on 18-2-41. Dr. U. B. Narayan Rao presided.

Minutes of the last meeting read and confirmed.

Accounts for January 1941 for Rs. 11-3-9 were scrutinised and passed.

G. S. letter regarding delegates' hotel charges read and recorded; his letter regarding the grant for session of the Annual Conference was read. The Committee asked the Secretary to correspond with the Editor, *I. M. J.*, requesting him to furnish the copy of the speeches pertaining to the resolution on the extra grant for the Bombay Conference.

(3) Managing Committee meeting held on 26-3-41. Dr. U. B. Narayan Rao presided.

Minutes of the last meeting read and confirmed.

Accounts for Rs. 7-3-0 were scrutinised and passed.

Resolved that the next meeting should be called in co-operation with the Bombay Suburban Branch so that the question of amalgamating the two Branches will be considered as per resolution of the Bombay Conference.

The Managing Committee decided that the rules and regulations as well as the letter of the Secretary of the Bombay Medical Association be put before the General Body.

(4) General Body meeting held on 22-5-41. This meeting was held as per circular No. 5 dated 18-3-41. Dr. U. B. Narayan Rao presided.

Resolved to postpone the annual dinner for the present.

A lively discussion on small-pox took place.

Resolved to take part in the joint meeting of the medical profession of the city, regarding the rules and regulation, proposed to be called by the Bombay Medical Association.

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Karachi (Sind): General meeting held on 27-3-41. Five members present. Dr. Balwant Singh was elected as Chairman. Minutes of the meeting held on 17-2-41 read and confirmed.

Considered the letter No. Gen. 5/37 dated 7-3-41 from the Hon. Jt. Secretary, Karachi Medical Association. Deferred consideration with the permission of the chair.

Considered the letter dated 24-3-41 re. validity of the 2nd Bombay Provincial Conference. Resolved to be recorded.

Rajkot (Bombay): Meeting held on 26-4-41 under the presidentship of Rao Sahab Dr. C. G. Antani. Twenty-eight licentiates present.

Rao Sahab Dr. Lalubhai C. Shah read the inspiring messages from the Bombay Prov. Secretary and Dr. Jamiatram B. Desai, President of the Gujarat Branch, both expressing their inability to attend the meeting and wishing all success to the Branch.

Dr. S. A. Subedar explained to the new members the aims and objects of the Association and how the activities are being directed to achieve these aims and objects.

The meeting then elected the following Managing Committee for the year: Rao Sahab Dr. Lalubhai C. Shah - President, Drs. S. A. Subedar, Vice-President, Rao Sahab R. N. Ghate, and Rao Sahab T. H. Trivedi - Joint Hony. Secretaries, Rasiklal Jankibai Kithurkar, M. L. Shah, M. D. Udani, K. N. Mehta, A. A. Labaj.

Rao Sahab Dr. L. C. Shah then proposed a vote of thanks to Lt. Col. M. P. Atkinson, the Chief Medical Officer, W. I. S. Agency for allowing the meeting to be held in the West Hospital. Lt. Col. Atkinson was At Home to the members.

Saran (Bihar): (1) Annual meeting held on 31-4-41. Six members present.

The Secretary read the Annual Report for 1940-41.

Resolved that the old office-bearers should continue.

Resolved that Rai Sahab Dr. A. K. Ghose be elected as Vice-President, and Dr. S. N. D. Bannerje as Joint Hony. Secretary.

(2) Monthly meeting held on 18-5-41 under the presidentship of Dr. M. Bose. Ten members present.

Resolved that a condolence resolution be passed on the death of Dr. F. K. Ghose, a member of our class, though not a member of our Association.

Bilaspur (C. P.): Meeting held on 20-4-41. Twelve doctors attended.

The President read out the names of doctors to whom invitations for the meeting were sent.

The President informed the Branch members of the enrolment of 3 new members. Drs. S. L. Gopal, R. L. Dubey and B. B. Gangoli paid their subscriptions.

Dr. P. H. Sant gave a discourse on the correct methods of diagnosis of Diabetes Mellitus, histories of various cases, etc.

Resolved that a meeting should be held on the last Saturday of each month. Also resolved that the President should request the Civil Surgeon to permit the Assistant Medical Officers to attend the meeting.

Dr. R. L. Dubey was elected as Joint Secretary in place of Dr. B. G. Kathale as the latter is to join the military duty.

Dr. B. G. Kathale was thanked for his past work.

Resolved that the President be authorised to correspond with the authorities concerned to furnish information regarding the transfers of A. M. Officers and S. A. Health Officers (C. P.) to the Editor of the *Journal* for publication.

Bhagalpur (Bihar): Meeting of the District Board Medical Association, Bhagalpur held on 11th May 1941. Medical Officers present:—15.

(1) Confirmed the proceedings of the last meeting held on 24-4-40 except resolution No. 4.

(2) Regarding compounders' conduct, it was resolved emphatically that since the medical officers who are in immediate charge of the hospital are wholly responsible for the proper working and discipline of the Institution, the District Board Executive are requested to consider the report of the Medical Officers against the compounder and to take immediate disciplinary action but if they like they may make further enquiries after action taken against the compounder.

(3) The Civil Surgeon, Rao Bahadur Dr. Sudhir Kumar Sen, M.B., D.T.M., was elected President of the Association—proposed by Dr. J. N. Singh and seconded by Dr. H. Prasad.

Dr. B. K. Banerji, M.B., was elected Vice-President of the Association—proposed by Dr. R. K. Misra, seconded by Dr. K. Bose.

Dr. H. Prasad was elected Secretary of the Association—proposed by Dr. J. N. Singh and was carried out unanimously.

Dr. K. N. Bose was elected the Joint Secretary of the Association—proposed by Dr. H. Prasad and carried out unanimously.

Dr. J. N. Singh and Dr. G. C. Mitra were elected organisers of the Association for North Bhagalpur and South Bhagalpur respectively.

The following were elected as Executive members: 1. Dr. L. M. Mukherji. 2. Dr. R. K. Misra. 3. Dr. R. Ahmad. 4. Dr. S. P. Vaishya. 5. Dr. G. C. Mitra. 6. Dr. J. N. Singh.

(4) Resolved that the Organisers should take active part to organise the District into a Provincial Association. The cost will be met by the Association and they are requested to report their activities to the Secretary, as well as their tour programme.

(5) Some of the doctors are absent from the Annual Conference and it is therefore resolved that it is very detrimental to the growth of the newly formed association and they are requested not to be absent from the association in future.

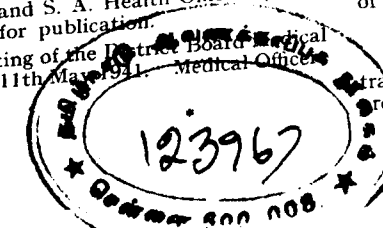
(6) In view of the fact that the annual increment of the medical officers of the Board has totally been stopped since last year, it is therefore resolved that our resolution No. 5 dated 24-4-40 be kindly considered by the District Board. The resolution runs as follows. "Resolved that the scale of pay be fixed from Rs. 60/- to Rs. 100/- with an annual increment of Rs. 2/- the present may be adjusted accordingly. If not feasible the D. B. scale of pay to the medical officers be followed and the increment kindly be given. It is further resolved that the two senior-most doctors have retired and so these two vacancies be filled up by the two senior-most doctors and they may be allowed the same maximum pay, in consultation with their Service Books.

(7) From the report of a few medical officers it appears that the District Board has not maintained our P. F. Accounts up-to-date. It is therefore resolved that the Chairman be requested to pass orders to his office to give us an annual account of our Provident Fund.

(8) It was resolved that two Medical Journals be subscribed—one for North and one for South. Each medical officer will please keep a journal for a week only and will circulate from one to another in order and will return to the Organiser, who will remain in charge of the Journal.

(9) There are three Lady Doctors in three Sub-Divisional Hospitals and it is resolved that they be co-opted as members of the Association.

(10) The President stressed on the need for Post-Graduate training of District Board doctors for the benefit of their professional knowledge as well as for the public.



22, 206
N 41-35-8

**Consolidated Accounts of the All-India Medical Licentiates' Association
February to April 1941**

Receipts	February 1941	March 1941	April 1941
To Subscription (old and new)	Rs. 3,260 3 0	Rs. 1,508 3 3	Rs. 657 0 0
" Advertisement	695 0 0	787 13 0	701 11 0
" Interest	37 11 0	...	...
" Miscellaneous	...	1 4 0	...
" Contribution to the Mother Association by Dr. Mohd. Yusuf Khan, Bareilly	...	...	2 0 0
" Deposit of Dr. Gunananda Mukherjee, Burdwan	...	...	2 0 0
	3,992 14 0	2,297 4 3	1,362 11 0
Balance from last month	Rs. 71,320 8 9	68,182 11 6	66,752 0 0
	& £ 157 17 10	£ 157 17 10	£ 157 17 10
GRAND TOTAL	Rs. 75,313 6 9	70,479 15 9	68,114 11 0
	& £ 157 17 10	£ 157 17 10	£ 157 17 10
DETAIL OF BALANCES			
War Loan	£ 157 17 10	£ 157 17 10	£ 157 17 10
13 Shares of the Bactro-Clinical Laboratory	85 0 0	85 0 0	85 0 0
New Loans	8,200 0 0	8,200 0 0	8,200 0 0
Savings Bank Account with Imperial Bank of India, Delhi (For Omera Gold Medal)	388 8 11	388 8 11	424 9 11
G. P. Notes	16,291 9 0	16,291 9 0	16,291 9 0
Government Bond for S. S.	9,409 2 1	9,409 2 1	9,409 2 1
" " 1943	5,600 0 0	5,600 0 0	5,600 0 0
Imperial Bank of India, Delhi	13,327 4 6	13,327 4 6	13,291 3 6
P. O. S. Bank with President	76 9 5	76 9 5	76 9 5
With Dr. S. P. Sengupta, Ex-Manager, I.M.J., Calcutta	793 12 1	793 12 1	793 12 1
With Branches	312 12 0	395 14 0	395 6 9
With Managing Editor :—	997 3 2	1,094 11 5	1,112 2 2
In Bank	131 11 8	134 4 5	132 5 8
In cash	35 9 3	34 14 3	33 3 0
In Stamps	...	...	...
With General Secretary	10 6 0	...	16 10 0
With Honorary Treasurer :—	10,166 7 6	9,495 7 6	9,540 7 6
In P. O. S. Bank	2,177 4 11	1,312 10 8	1,441 5 2
In P. N. Bank	179 7 0	112 3 9	79 11 3
In Hand	...	...	...
GRAND TOTAL	Rs. 68,182 11 6	66,752 0 0	66,923 1 6
	& £ 157 17 10	£ 157 17 10	£ 157 17 10
Payments			
Printing, I. M. J.	220 10 3	910 0 0	194 12 0
Establishment	433 0 0	445 0 0	421 0 0
Rent	60 0 0	70 0 0	50 0 0
Stationery	29 10 3	11 3 6	10 3 0
T. A.	5,429 14 0	1,458 11 6	80 13 0
Postage	166 2 3	210 8 9	190 4 0
Miscellaneous	58 15 0	65 8 9	70 7 2
Propaganda	23 14 0	100 2 0	...
Branches	425 15 9	217 5 3	108 15 3
Commission and other charges by the Imperial Bank of India, Delhi	0 8 0	...	...
Other Printing	100 12 6	74 7 0	5 4 0
Payments to Contributors	...	20 0 0	...
Audit Fee	60 0 0	...	...
Loan Returned to General Secretary	121 5 3	140 15 0	13 8 0
Furniture	...	...	6 2 0
Subscription to Foreign Journals	...	...	40 5 1
Scientific Section	...	4 2 0	...
	7,130 11 3	3,727 15 9	1,191 9 6
Balance in Hand	Rs. 68,182 11 6	66,752 0 0	66,923 1 6
	& £ 157 17 10	£ 157 17 10	£ 157 17 10
GRAND TOTAL	Rs. 75,313 6 9	70,479 15 9	68,114 11 0
	& £ 157 17 10	£ 157 17 10	£ 157 17 10

One plus (+) reaction—Slight but defined oedema raised 1 mm. above skin surface and not more than 10 mm. diameter in the largest axis.

Two „ (++) —Well defined oedema, raised somewhat more than 1 mm. above skin surface; diameter between 10-15 mm.

Three „ (+++) —More extensive oedema with diameter exceeding 15 mm. and thickness exceeding 1.5 mm. above skin surface; wide area of redness beyond but no vesiculation or necrosis of the skin.

Four „ (++++) —Characterised by extensive oedema, redness, vesiculation and necrosis; may be associated with temperature and malaise.

Interpretation :—A positive tuberculin test always means the presence of tuberculous infection.

The positive reaction has its chief value in infancy, when it is more likely to be associated with active tuberculous disease or with a condition which may progress into active tuberculous disease, which may lead to a fatal issue. The younger the age, the worse the prognosis.

An infant under 2 years showing a positive reaction, but without symptoms, should be kept under observation for some years on account of the possible development of clinical tuberculosis. Meantime the prognosis should be optimistic, though guarded. If, however, obscure and persistent symptoms like unexplained pyrexia or loss of weight are present, the origin might probably be tuberculous and a more serious view should be taken until time shows this to be unwarranted.

A positive reaction in a child aged 2-5 or even ten years with persistent symptoms should suggest that these symptoms are tuberculous in origin. A weightage towards positive significance in interpretation should be given in cases of children in rural and semi-rural areas. An infected or improperly immunised adult in a remote rural area in India, may, however, behave like an urban child with regard to hypersensitiveness.

Where a patient over 5 years gives a positive reaction to a qualitative test, it must not be concluded that clinical tuberculosis is present. In such cases the positive reaction has its principal diagnostic value when elicited by quantitative intracutaneous tests made with weak solutions of tuberculin (e.g. by 1/50,000 and 1/1,00,000 dilution) especially in rural people or hill tribes and in dermatological conditions. Quantitative tests are of doubtful value for estimating the prognosis in clinical tuberculosis.

The principal application of tuberculin tests in clinical practice is to a negative diagnosis or the exclusion of clinical tuberculosis. Failure to get a positive reaction does not always exclude tuberculosis. In spite of harbouring living tubercle bacilli in the body, a negative test may be obtained where the dose of tuberculin has been too small to elicit a reaction or the reaction has

been done during the ante-allergic period or where the immunity is depressed or absent in certain clinical conditions like acute infectious disease, pregnancy, old age, cachexias and advanced tuberculosis a short period before death or in acute miliary or generalised tuberculosis.

Tuberculin tests are of great value in 'contact' cases both for detecting infection in infants and for excluding tuberculosis in these and older children. In testing contact children of tuberculous families, make routine tests on negative cases at intervals of six months, to determine the time when they are infected. Children still negative at 4-5 years may be given a good prognosis. The prognosis should be guarded when infants under 2 years react positively and when obscure symptoms persist for some time. A positive reaction in a young child aged 2-5 or even 10 years with persistent symptoms should suggest that these symptoms are tuberculous. About this age children who give a positive reaction to 1/10,000 or weaker dilution should be viewed with suspicion and should be X-rayed. If impaired health and conspicuous underweight are noticed in these children, they should receive special care in diagnosis and treatment. If several positive reactors are found among the children in a family, suspect a 'carrier' in the house.

N.B.—The International Standard Tuberculin is available at the following places:

Beckenham (England) ...	Wellcome Physiological Research Laboratories (Depot in Bombay).
Hampstead (London) ...	National Institute for Medical Research.
Paris ...	Institute Pasteur.
Copenhagen ...	Statens Serum Institute.
Frankfort-on-Main ...	Stealiches Institute for Experimentelle Therapie.

Sputum Examination for Tubercle Bacilli

In order that the results of examination of one institution may be compared with those of another it is recommended that certain minimum standards should be adopted in the examination of sputum for tubercle bacilli.

Direct Smears :—Smears made preferably from sputum coughed out in the early morning should be prepared with due care as to choice of the part of the sputum taken for smearing. A modification of Ziehl-Neelsen's method with picric acid 1% in distilled water as a counterstain, is recommended.

A slide should be examined by a trained microscopist for 5 minutes using a magnification of approximately 500 to 600 diameters, before a report of 'no tubercle bacilli found' is given (or 200 fields may be examined).

If negative, a sputum should be examined by direct smear on four different days, if possible within a week, before proceeding to other methods.

Since there are micro-organisms other than tubercle bacilli which take the acid fast stain, care should be taken that only bacilli which are typical in shape and staining are reported as tubercle bacilli. If three or less acid fast bacilli are found, a positive report should not be made, only a report stating one, two or three acid fast bacilli found.

Concentration Methods:—Where direct smears are negative a concentration method should be employed. If the sputum is scanty, it should be collected for 24 hours. There are many concentration methods but the two following are simple and easily employed:—

Alkali Method:—Equal parts of sputum and 4% sodium hydroxide are well mixed and left to stand for 20 to 30 minutes at room temperature being shaken occasionally until the mixture is homogeneous. Homogenisation may be hastened in cooler parts of India or in the cold season by placing the mixture in the incubator at 37 degrees centigrade. The mixture is then centrifuged at approximately 3,000 revolutions a minute for 20 minutes. (This cannot be done by a hand centrifuge). The sediment is neutralised to litmus by the addition of a few drops of 8% hydrochloric acid. The solution becomes white or opaque when neutralisation is complete and then no fixative is needed for the slide.

Acid Method:—Equal part of sputum and 6% sulphuric acid (by volume) are well mixed and left for 20 to 30 minutes, incubating if necessary, as for the alkali method. After centrifuging at high speed for 20 minutes the sediment is used for making smears. This method gives rather more sediment than the alkali method which is some disadvantage if only smears were made, but is not a particular disadvantage if cultures are also to be made.

The standard of microscopic examination is the same as for direct smears.

Culture Method:—If smears are negative by the concentration method, cultures should be done wherever possible.

The sputum is concentrated by either the alkali or acid methods and in addition to slides being prepared, cultures are also put up from the same sediment. One of the more sensitive modern media should be used such as Lowenstein's (Jensen's modification) or Petragnani's or Petrik's. Some workers prefer to use two different media. At least six tubes are prepared from each specimen. The cultures are seen each week and a final report may be given at the end of six weeks.

Stomach Wash Method:—If the sputum is negative for tubercle bacilli or if sputum is absent or difficult to obtain, as in children and some women, the stomach wash method may be used. In the early morning the contents of the fasting stomach are removed with Ryle's tube; about 200 c.c. of sterile water may first be injected through the tube. The stomach wash water is allowed to settle and the sediment is treated and concentrated by the acid method, and smears or cultures are made.

It must be remembered that acid fast saprophytes may occasionally be found in stomach wash sediments.

In all methods used for cultures sterilised glassware only should be used, to avoid the possibility of false positives.

Animal Inoculation:—Animal inoculation should only be done in research laboratories by workers experienced in this type of research work. The method is more costly, takes longer, is more liable to pitfalls than the culture method.

Standard for Sputum Examination:—Although it is desirable to have the above standard of smears on four days, concentration, culture and stomach wash culture before a sputum is declared negative, it is recognized that this standard cannot yet be adopted for all places in India, owing, for example, to the absence of electricity or of facilities for culture. But it is recommended that in making a report about sputum examination in any institution the standard adopted in the institution should be specified.

Blood Examination in Tuberculous Patients

The blood examinations which are of most use in the treatment of tuberculous patients are the Sedimentation Test and the Leucocyte Count. Neither is of much help in diagnosis but both when frequently repeated are of great use as a guide during treatment and also in prognosis when the diagnosis has been established.

Sedimentation Test:—There are several methods of doing the sedimentation test such as Westergren, Cutler and Wintrobe and Landsburg. The differences in technique concern the amount of blood taken, the proportion of blood and citrate and the time of reading the test.

Westergren's technique is recommended as being simple and the widest used. Glass tubes with an even bore of 2.5 mm. and graduated from 0 to 200 mm. at the tip are used. In a 2 c.c. syringe 0.4 c.c. of 3.8% sodium citrate is taken and into this is drawn 1.6 c.c. of blood from an arm vein, making a total of 2 c.c. of citrated blood. A little air is drawn into the syringe and it is well shaken to mix the citrated blood. The citrated blood is put into a small test tube and then sucked up into the sedimentation pipette and placed vertically in the sedimentation rack. The reading of the red cell level is taken at the end of one hour.

Normal for men	up to 7 mm.
" " women	up to 10 mm.

Variations from normal:—

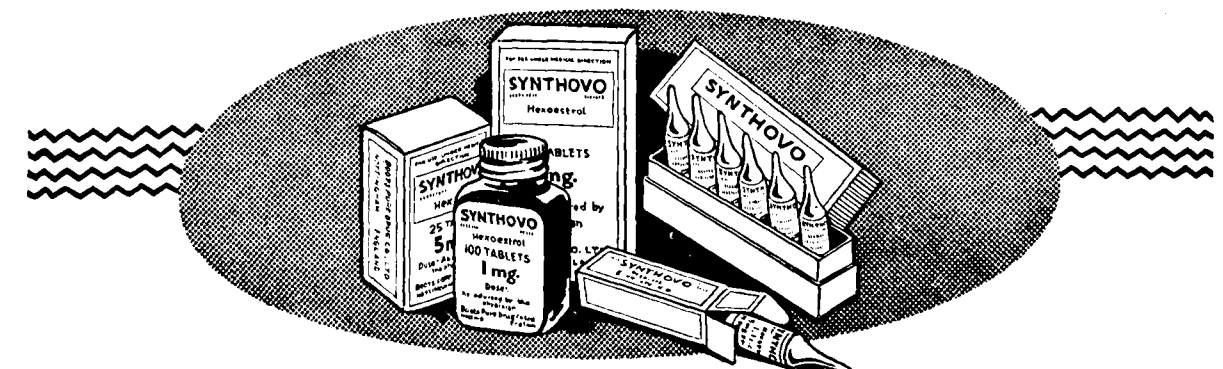
A slight	15-40 mm.
B Moderate	40-80 mm.
C Severe	above 80 mm.

Exceptions may be found e.g. when a very sick person may have a low sedimentation rate.

Leucocyte Counts:—The leucocyte counts include an absolute count, a differential count and a count which takes into consideration the differentiation of the neutrophils.

The differentiation of the neutrophils is judged according to the segmentation which has taken place in the nucleus. The Von Bonsdorff count is the sum of lobes in 100 consecutive neutrophils, the normal figure being above 275. The Schilling Count makes no distinction after segmentation has once taken place. The Stabkernige cells are the horse-shoe, band, or 'S' shaped nuclear cells without segmentation.

The standard which should be accepted in judging segmentation of the neutrophils, whether in the Von Bonsdorff Count or in the Schilling Count, should be



SYNTHOVO

HEXOESTROL

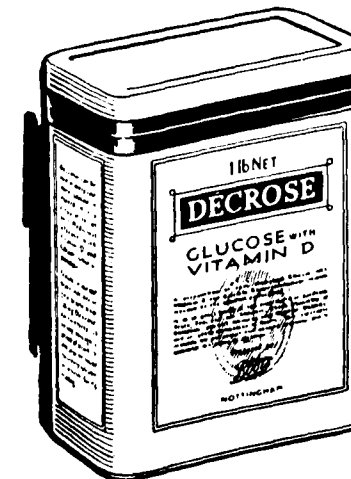
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JUST OUT JUST OUT ESSAYS ON CARDIOLOGY

BY

DR. JAI GOPAL, L.S.M.F. (Pb.)
ASSOCIATE EDITOR, I.M.J.

With a foreword by

Dr. A. VISWANATHAN, EDITOR, I. M. J.

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DISEASES OF NUTRITION

In India, the vast number of population have to drag their miserable existence in a chronic economic tension without any appreciable alternative until the tragic end. The caption under review should, therefore, be necessarily focussed from the socio-economic standpoint. The problem of nutrition and hence the generation of weaklings have become and are still becoming so much widespread that it should be entitled to our serious consideration and adequate preventive measures suggested by the teachings of the nutritional research of the century should be taken by each of us. It is, no doubt, a question of political sociology at large, yet individual approach as in the shape of better hygienic care in the preparation of daily food-stuffs, practicable knowledge of food and dietetics, routine dose of a valuable dietary adjunct such as well-known food- tonic 'Bi-Vita-B' will solve the difficulty and the problem.

"Bi-Vita-B" is admittedly out of the run of so-called tonics in the market. In it, modern physicians would gladly find the unique medication of essential mineral requisites in combination with physiologically adjusted vitamin 'B' including Glycerophosphates of Calcium, Sodium, Potassium, Manganese, Nuclenic acid presented on a palatable malt basis of pleasing flavour. In diseases of nutrition, such as, retarded growth, underdevelopment, nervous breakdown, loss of appetite or in convalescent stage of prolonged illness it acts reliably to restore the patient to normal health on the principle of natural upbuilding of the system.

ADVT.

AUGUST, 1941] TAKING OF TEMPERATURE IN TUBERCULOUS PATIENTS: T. A. I.

that of Cooke. "If there is any band of nuclear tissue except in chromatin filaments connecting the different parts of the nucleus, the nucleus cannot for the purpose of the Arneith count be said to be divided."

Indices:—Some workers have found a great help in using a tuberculosis Index. Among these, three may be mentioned—Medlar's, Houghton's, and Frimodt-Möller and Barton's.

Medlar's Index:—This is calculated from the lymphocytes and monocytes as follows:—

$$\frac{\text{Mono}}{\text{Lymph} + \text{Mono}} \times 100$$

Normal about 10

Variations from normal:—

A Slight	20 and under
B Moderate	21-50
C Severe	51 and above.

Houghton's Index:—This is made up as follows:—
On one side are placed what are grouped as 'positive' factors in favour of the patient, namely the Von Bonsdorff Count, lymphocytes and eosinophiles, and on the other side 'negative' factors against the patient,—the sedimentation rate, the neutrophils and the monocytes. His index is then:—

V. B.	= [S. R. + {P + M - 2(L + E)}]
V. B.	= Von Bonsdorff Count
S. R.	= Sedimentation rate
P.	= Polymorphonuclear neutrophils
M	= Monocytes
L	= Lymphocytes
E	= Eosinophiles.

The lymphocytes and eosinophiles are considered both in relation to the neutrophils and also to the monocytes and so are included twice.

The normal Houghton's Index is between 260 and 300.

Variations from normal:—

A Slight	250-200
B Moderate	200-100
C Severe	100-0

Frimodt-Möller and Barton's Index:—This index is based on the use of the Schilling differentiation of the neutrophils.

The index is made up of four factors:—

- (1) The neutrophile percentage—lymphocyte percentage:—
 $(N-L)$
- (2) The monocyte percentage—lymphocyte percentage:—
 $(M-L)$
- (3) The percentage of neutrophils of stabkernige form:—
 $\left\{ \frac{\text{Stab}}{N} \times 100 \right\}$
- (4) The sedimentation rate (Westergren) in one hour expressed in percentage:—
 $\frac{SR}{2}$

An increase in any of these factors is against the patient, and a decrease in favour.

The index is expressed as follows:—

$$(N-L) + (M-L) + \left\{ \frac{\text{Stab}}{N} \times 100 \right\} + \frac{SR}{2}$$

$$\text{or } N + M + \left\{ \frac{\text{Stab}}{N} \times 100 \right\} + \frac{SR}{2} - 2L$$

A normal index is between -20 and +20.

Variations from normal:—

A Slight	21-75
B Moderate	76-150
C Severe	151 and above.

Certain conditions should be observed in all blood counts:—

(1) For purposes of comparison it is best to have all blood examinations made as far as possible under similar conditions, preferably at about the same time of the day.

(2) All blood smears should be made by an experienced technician.

(3) As far as possible one person should be responsible for the blood counting and that person should be a trained person.

(4) Never less than 200 cells should be counted. It will give less error, if 400-500 cells are counted.

The taking of Temperature in Tuberculous Patients

(1) The temperature should be taken only with a reliable thermometer, preferably one which has been recently tested against a standard thermometer. It should be remembered that a thermometer once correct does not always remain correct and may even show one or more degrees variation from the standard after some time.

(2) The rectal temperature is the most reliable one in recording the temperature in tuberculosis and is to be preferred except when any special complication prevents.

(3) The temperature should be taken at the same time each day. The early morning temperature is taken just after the patient wakes and before he leaves his bed for any purpose. Usually the temperature taken three other times later in the day are, with the waking temperature, sufficient to give the daily range of temperature change but occasionally it may be necessary to take the temperature at other times as well. Rest temperature should always be after 20-30 minutes' rest in bed.

(4) In taking the rectal temperatures the thermometer, after being smeared with a little vaseline, is inserted into the rectum to a depth of 1½ to 2 inches and kept there for five minutes (even if the thermometer is a ½ minute thermometer). After being wiped with cotton soaked in lotion the thermometer is read and the mercury then shaken down.

(5) If oral temperature is used, the thermometer should be left under the tongue with the mouth closed for at least 7 minutes. During this time the patient should not speak, and immediately before he should not have taken any hot or cold food or drink.

(6) Difficulties may occasionally be experienced in the hot weather in India owing to excessive air temperature being above that of the patient's temperature. It is sometimes possible to cool the thermometer in water, shake down the mercury, quickly insert it in the rectum or place it under the tongue and at the end of the time read it quickly.

(7) Axillary temperature is not recommended as the thermometer has to be kept for fully 15 minutes under the axilla and the axilla must be quite dry—a condition not always possible in India.

Inguinal temperature is as unreliable as axillary temperature.

Testing Thermometers:—Testing a thermometer with a standard thermometer cannot be done in a small volume of water such as a tumbler, as variations in air temperature may cause variations in different parts of the water in the tumbler even up to $\frac{1}{2}$ a degree or more. A large volume of water should be used, such as a deksha, and after stirring the water well the thermometer should be placed in the centre not touching the bottom.

If a standard thermometer is not available, several thermometers of a reliable make should be used and any thermometer varying from the average more than 0.2 degree should be discarded for use on tuberculous patients.

HORLICKS SPONSORS FREE THEATRE IN LONDON FOR DEFENCE FORCES

Horlicks Limited of England has instituted a daily three-hour entertainment in a West End London theatre where all 1,200 seats are free and are set aside for the exclusive use of the Civil, Navy, Army, and R. A. F. Defence Workers, and the women's branches of the various services.

The entertainment consists of films, a well-known orchestra, four or five vaudeville "turns" and community singing. On Sundays, one-half hour of the programme features the country's leading theatrical talent with such outstanding stars as Vivien Leigh, Lawrence Oliver, John Gielgud and others.

This half hour has become such a feature that, under the title of "Colonel Horlick's Matinee for the Forces and Civil Defence Services", it is broadcast by the B. B. C.

The project has been a success from the first, according to the London Office of J. Walter Thomson Company which produces the show and handles Horlicks advertising. The theatre has been packed every day.

FOREIGN MEDICAL NEWS

Our American Letter

(From Our Own Correspondent)

New U. S. Pharmacopoeia

The new Revision Committee of the U. S. Pharmacopoeia has already begun to consider recommendations on scope. A number of important policies were adopted at the 1940 U. S. Pharmacopoeial Convention which apparently will be reflected in the type of articles to be included or deleted from the next revision (U. S. P. XII). Because of the importance of the Pharmacopoeia to the practice of medicine, the U. S. P. Sub-committee on Scope has prepared a preliminary statement of the suggested changes. It is interesting to compare these suggestions with the present state of the Pharmacopoeia.

Here is a list of some of the articles not formerly pharmacopoeial, now recommended for the U. S. P. XII.

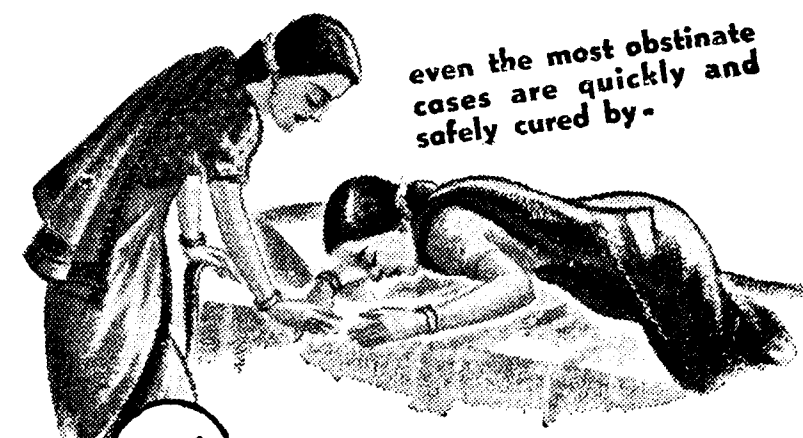
Antipneumococcus Serum.
Calaminae Preparata.
Calcium Mandelate.
Dextrose solution, for injection 50 per cent.
Dextrose and Sodium Chloride Solution, for injection.
Elixir Cardamomii Compositum.
Elixir Phenobarbitali.
Ethyl Carbamate.
Gas gangrene antitoxin.
Glycocoli.
Immune serum for scarlet fever.
Immune serum for measles.
Immune globulin (Placenta extract).
Lotion Calaminae.
Magnesium Trisilicate.
Oleum Hippoglossi (Halibut).
Ouabain.
Picrotoxin.
Potassii Chloridum.
Quinine Hydrochloride.
Riboflavin.
Ringer's Solution.
Syrupus Ammonii Mandelatis.
Syrupus Glycyrrhizae.
Syrupus Rubi Idaei.
Tabellae Aminopyrinae.
Tetanus Toxoid.
Tetrachloroethylene.
Theobromine with Sodium Acetate.
Totaquinine.
Transfusion Normal Plasma, Human.
Trichloroethylene.
Urea.
Vitamins A and D in Oil (Cod Liver Oil Strength).

The following additional items, needed as "pharmaceutical necessities" must be added as new admissions:—Compound Spirit of Cardamon; Cudbear; Oil of Caraway; Oil of Cardamom; Raspberry Juice; Spirit of Bitter Almond; Tincture of Cudbear.

The following list contains some of the articles official in the U. S. P. XI, but not admitted to the U. S. P. XII, commonly spoken of as "Deletions."

Acetum Scillae.
Acidum Aceticum Dilutum.
Aconitum.
Ammonii Benzoas.
Asafoetida.
Calcii Bromidum.
Cannabis.

FUNCTIONAL DISORDERS in WOMEN



even the most obstinate cases are quickly and safely cured by—

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A powerful uterine tonic and sedative anodyne for Ovarian and Climateric disorders.

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INDICATIONS:

Dysmenorrhoea, congestion of the uterus, ovaries and pelvic disorders, sub-involution of the uterus, troubles after miscarriage and as a sedative in bleeding from the womb and threatened abortion.

COMPOSITION:

Each fluid drachm represents	
Ext. Aletris Liq.	7.2 Minims.
.. Shatavari Liq.	6.0 "
.. Ashoka Liq.	6.0 "
.. Ashwagandha Liq.	6.0 "
.. Glycyrrhiza Liq.	3.0 "
.. Viburni Prunifolia Liq.	7.2 "
.. Hydrastis Liq.	3.0 "
Tinct. Cannabis Indica	3.6 "
Potash Bromide	4.5 Grains.

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There are three practical uses to which

A - O*may be put*

- (I) Prophylactic
- (II) Diagnostic and Prognostic
- (III) Therapeutic

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- Pulmonary tuberculosis (*Apical catarrh*)
- Surgical and urogenital tuberculosis
- Ophthalmological tuberculosis
- Dermal tuberculosis
- Pleurisy and Peritonitis in Convalescence
- Disorderly menstruation due to innate weakness
- Glandular affections
- Laryngeal and intestinal tuberculosis
- Is also useful as a diagnosticum and as a prophylactic of tuberculosis.
- A-O is an agent which calls forth or increases in an organism the immunizing powers through a biological reaction of its own.

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Our Canadian Letter*(From Our Own Correspondent)***Chest X-Ray Examination of Recruits**

W. A. Jones, Ottawa, reported on a survey for the discovery of concealed thoracic diseases among recruits otherwise considered fit for service. It disclosed that a little more than 1.5 per cent. were not fit. Of several thousand examined about 1 per cent. were rejected because of present or past pulmonary tuberculosis, and slightly more than 0.5 per cent. because of other respiratory and circulatory diseases, while about 0.1 per cent. were refused for miscellaneous conditions such as substernal thyroid, tuberculosis of the spine and marked scoliosis. The survey is important because it protects other service men from tuberculous infection and as a means of preventing the unfit from entering the service. It is sound economically because its cost is relatively low and because of the potential saving of enormous treatment and pension costs.

Newer Drugs in Treatment of Epilepsy

J. N. Petersen and Haddow M. Keith, McGill University, Montreal, tested a large number of well known sedatives and hypnotic drugs as well as a series of new ones, to determine which had the highest anti-convulsant effect with the least narcotic action.

Diphenylhydantoin, acetophenone, and several phenone and ketone derivatives were the only drugs which in non-narcotizing doses had an anticonvulsant effect comparable with that of phenobarbital. The bromides in non-narcotic doses raised the threshold only moderately. Phenobarbital was by far the most effective of the standard anticonvulsant drugs.

Diphenylhydantoin in the form of sodium diphenyl hydantoinate, or dilantin, was used in the treatment of epileptic patients. The greatest percentage of relief was obtained in the patients in whom petit mal attacks were associated with those of the grand mal type. In patients over the age of 6 years the average daily dose is from 2 to 4 capsules. It is customary to start by giving 1 capsule three times a day before meals, and if the seizures are not controlled within a period of 7 to 10 days a fourth dose is added. Not more than 6 doses should be given in 24 hours, and if favourable effects are not produced in 3 or 4 weeks the medication may be discontinued. A certain number of toxic manifestations may be expected with the use of dilantin (nausea, vomiting, tremor of the hands, some ataxia). No fatalities have been reported. Dilantin should be used with caution in patients with cardio-renal disease or those in a debilitated state. Many of these patients found greater benefit if they continued to take a single, small daily dose of phenobarbital in addition to the dilantin.

Mebaral, the second drug under discussion, is methylethylphenyl-barbituric acid, and is known in Europe under the name of Prominal dispensed in tablets of 3 grains, 0.2 grams, the average dose is 1 tablet 2 or 3 times a day. In substituting this drug for phenobarbital, the change should be gradual, as in the case of dilantin. The only undesirable symptom manifested after the use of the drug was drowsiness, and

Capsicum.
Ceratum Cantharidis.
Cinchona.
Colchici Semen.
Copaiba.
Creosotum.
Emplastrum Cantharidis.
Extractum Nucis Vomicae.
Ferrum.
Fluidextractum Belladonnae Radicis.
Galla.
Guaiacol.
Iodoformum.
Liquor Ammonii Acetatis.
Liquor Ferri Chloridi.
Massa Hydrargyri.
Oleum Santali.
Pancreatinum.
Peppermintum.
Pilulae Aloes.
Potassii Chloras.
Pulvis Ipecacuanhae et Opii.
Pulvis Sennae Compositus.
Pyrogallol.
Quinina.
Resina Podophylli.
Santoninum.
Scilla.
Sodii Acetas.
Spiritus Chloroformi.
Strychninae Nitras.
Syrupus Ferri Iodidi.
Terebinthum.
Theobromina cum Sodii Salicylate.
Tinctura Cinchonae Compos.
Tinctura Valerianae.
Unguentum Gallae.
Veratrum Viride.

Physicians as well as pharmacists are encouraged to send comments on the foregoing proposals to Committee and medical and pharmaceutical press. Nomenclature of the new products will be dealt with by another Committee which has indicated that, wherever possible, established nonproprietary terms will be used.

Oxygen and War Pilots

Recently Captain M. S. White, U. S. A., Assistant Director of the School of Aviation Medicine at Randolph Field, Texas, reported on heart tests on officers and men of the U. S. Army Air Corps which showed that signs of heart damage due to oxygen lack may appear at altitudes as low as 5,000 feet. Changes in the electrocardiogram were first noted at 5,000 feet and became progressively greater with increasing altitudes. In continued flight at 15,000 feet for two hours, signs of compensating mechanisms in the heart appeared. Giving oxygen reversed all the changes back to normal.

Oxygen should be used in flights as low as 5,000 feet, rather than at 10,000 feet and above as is now done, Captain White advised. He said that the changes revealed by the electrocardiograms suggest that lessened supply of oxygen to the heart through the blood is the cause of the heart damage. Dr. J. Bailey Carter, of Chicago, gave a report on the recent death of two young pilots who suffered heart attacks in mid-flight and were barely able to land their planes before dying; they were 27 and 34 years of age. This means the need of more thorough examination of the pilot's heart. Thoroughness of the cardiovascular examination is even more important than thoroughness in eye examination.

this could be controlled by reducing the dose. The drug seems to be less effective in cases of petit mal than in grand mal cases. The authors used Mebaral in 14 cases with improvement in 57.1 *per cent*. It is not known at present whether the long continued use of these drugs will result in conditions of a serious nature, or sufficient to force their discontinuance, but few of the adults treated have shown such complications.

Gentian Violet in Pinworm Infections

M. J. Miller, St. Anne de Bellevue, Quebec, and his collaborators used gentian violet tablets in the treatment of school children, from 6 to 13 years of age, infested with pinworm infection. The gentian violet was administered in 1/2 grain (0.03 gm.) and 3/20 grain (0.01 gm.) tablets. The disintegration of the tablets used was supposed to occur four hours after they were swallowed, thus providing the largest concentration of the drug at the site of the infection.

Treatment was continued for ten consecutive days. Of the children who took the prescribed dosage, and had three post-treatment anal swabs, only 3 were found still positive following treatment. Most patients reported no ill effects, some reported slight abdominal pain, or nausea lasting one day, and anorexia. The symptoms were usually so mild that treatment was not interrupted with the exception of 4 patients whose symptoms disappeared and did not return with the resumption of the treatment.

Frederick Banting's Tragic Death

The death of Sir Frederick Grant Banting through an airplane accident in the wild lands of Newfoundland is one of the greatest losses medicine and science have suffered in many a year. Sir Frederick, knighted, and co-winner of the Nobel Prize in Medicine in 1923, is best known for his epochal discovery of insulin as a therapeutic agent for diabetes. Dr. Banting was born in Alliston, Ont., in 1892, and graduated from the University of Toronto Faculty of Medicine in 1916. In 1921 he began research on the insulin problem in the Department of Physiology at the University of Toronto. He was a lecturer on Pharmacology at Toronto in 1921-22. Since 1923 he has been Professor of Medical Research in the Banting and Best Department of Medical Research, a chair which was established by the University of Toronto in recognition of his work on insulin.

The discovery of insulin has prolonged the life of innumerable diabetics and has enabled them to go about their work with energy and effectiveness. The story goes that in 1920 Banting happened to read in a medical publication that the pancreas always degenerates when a duct from it is either tied or is blocked in any way, as from gallstones. An entry in his note book for that very night reads: "Ligate pancreatic duct of dogs; wait six to eight weeks for degeneration; remove residue and extract."

For three years during the World War, Dr. Banting served with the Canadian Army Medical Corps, and he was again serving as a Major in the Medical Corps of the Canadian Army at the time of his death. At the moment of his death he was *en route* to England to convey the results of recent research on the science of aviation.

INDIAN MEDICAL NEWS

Our General Letter

India's Stock of Drugs and New Enterprises

India's stock of essential drugs, it is learnt, is sufficient to last at least two years on the basis of the existing requirements. The drug resources of the country have been so mobilised that it is asserted that every drug for which basic materials are available in the country is now manufactured here.

Before the war as many as 411 items of drugs were imported from abroad, many from Germany, while only 123 items were produced locally. The latest position is that as many as 292 items are manufactured here, while 242 items are imported. The United Kingdom still maintains her pre-war position to a large extent in the matter of drug imports into India subject to the availability of shipping space. South Africa and Australia have largely replaced Germany as suppliers to the Indian drug market. It is gathered that large stocks of German medicines and drugs which were vested in the Controller of Enemy Firms have helped in the building up of the drug reserve in this country for the period of war.

Enquiries show that Dr. Ray was recently appointed Director of Drugs and Dressings Productions, while Col. Rowntree has been appointed Director of Surgical Instruments and Appliances Production in this country. The effect of the planning of production is that almost all the textile items are already produced in this country, while 500 out of 600 items of surgical appliances are also now produced in India. Similarly, all kinds of vaccine and some sera such as anti-diphtheretic and anti-anthrax serum are produced in India. A beginning is also made with the manufacture of catgut. India, however, still largely depends on foreign imports for most of the sera and drugs like potassium, bromide, aspirin, bismuth carbonate and phenacetinum.

A meeting of the Medical Stores Supply Committee was held in the Secretariat, South Block, New Delhi, under the Chairmanship of the Director-General, Indian Medical Service, Lieut-General G. G. Jolly, C.I.E., I.M.S., on April 18, 1941.

Many items, the manufacture of which was initiated by the Committee some months ago, are now coming into production. The first batch of Indian extracted Emetine hydrochloride has been received and the firm is being supplied with Ipecacuanha root to maintain production.

Orders have been placed for substantial amounts of the following drugs:—

Amyl Nitrate, Atropine, Sulphate, Boric Acid, Nikethamide, Peptone, Tetanus antitoxin, Sodium Tauroglycocholate and Trichloroacetic acid.

Considerable progress was reported on the help received from University organic laboratories in India producing certain bacteriological stains and dyes. These dyes are for the most part used for the trade but can be purified for bacteriological use.

The Chairman referred to an informal conference that was held on February 17, with representatives of the surgical instruments industry in India.

The factors affecting the war production of surgical instruments in India were fully considered and closer liaison between the buyer and supplier was explored with the object of removing many of the difficulties now encountered by the industry in meeting the present heavy demands of the Medical Stores Department.

Various substitutes to be used in place of imported items were decided upon, for example Vegetable Laxative Mixture for Extractum Cascara Sagrada Liquid and Pulvis Kaolin Co. for Bismuth Carbonate.

A report by a Board convened by the Director-General, Indian Medical Service, to consider the quality of Plaster of Paris and bandages for Plaster of Paris was also considered by the Committee.

The latest position regarding the production of dried Blood Plasma was noted and reports by Dr. Ray on the manufacture of concentrates of Vitamins A and C were presented.

Since the last meeting eleven items have been transferred from the imported to the indigenous list making the latter for the first time greater than the former, the percentage on the drug list now being indigenous items 55, imported items 45.

The question of the standardisation of the many types of surgical instruments now in use by civil and military authorities was then considered.

It was decided to appoint an *ad hoc* committee to review the position and to make recommendations.

A sugar factory in India is investigating the possibility of producing liquid glucose on a large scale. A sample of their product has been tested by the Director-General, Indian Medical Service and found satisfactory except for the presence of certain impurities which the firm is now endeavouring to eliminate.

An important Committee under the auspices of the Director-General, Indian Medical Service, has just concluded its labours in New Delhi. The work of the Committee has been the standardisation of surgical instruments and appliances and the fixing of schedules of such standard instruments for supply through the Government Medical Stores Department for military and civil purposes, including A. R. P.

The objects before the Committee were to reduce the types of instruments and appliances to a minimum number compatible with efficiency and to select types of simple design and preferably such as could be manufactured in this country. The Committee consisted of civil and military members and included specialists in the various branches of medical, dental and veterinary work.

It is anticipated that through the work of this Committee the quantity production of surgical instruments in India will be facilitated.

Women's Wing of the I. M. S.

A Women's Wing of the Indian Medical Service is to be created in accordance with a decision under which, it is reported, women doctors are to be recruited to the service and given rank analogous to commissions, with pay and conditions of service equal to those of men.

It is gathered that about eighty women doctors have so far offered their services and of these, about

forty are to be chosen. Recruitment is to be made primarily from among Indian women doctors.

It is explained that the Women's Medical Service supplies medical aid to women in India at present, while the proposed Women's Wing of the I. M. S. will cater for men as well as for women in branches of work in which they could be readily assimilated. It is also pointed out that a reason why British members of the I. M. S. are regarded indispensable in certain stations is the need felt by British women. This need, it is anticipated, will be met by the proposed Women's Wing of the I. M. S. and to that extent British members of the service will be released for more important work.

It has already been reported that a number of British women have been recruited to the Royal Army Medical Corps.

Bengal Government Employees and Treatment of Tuberculosis

The question of laying down a definite policy and procedure for bringing their tuberculous employees, within the range of proper treatment is, it is learnt, engaging the attention of the Government of Bengal.

The Government have, after a careful consideration of the question, accorded sanction to some rules prescribing that all suspected cases of tuberculosis in their employ should be sent for examination and opinion to the Presidency or Civil Surgeon concerned. The rules also provide that, if after a careful examination by the medical officer in charge, the case is reported to be a "closed" one and the person is considered to be fit to carry on his duties, he should be allowed to continue in his appointment under some medical conditions. And if, after careful examination the case is found to be an "open" one, the patient should be granted leave up to the maximum, to which he is entitled and should not be allowed to resume his duties unless he is certified by a proper Government medical officer.

Adulteration of Food Stuffs in Madras

The Government Analyst, in his report to the Government, giving details regarding the samples taken under the Prevention of Adulteration Act, percentage of adulteration, number of convictions and the amount of fines imposed, observes:

"The outstanding conclusion to be drawn from the figures is that adulteration of food in the Madras Province continues on a very large scale; a scale that in my opinion should not be tolerated. There has been a trivial fall in the percentage of samples found to be adulterated, but of every three samples taken by the inspectors, on an average, one is found to be adulterated. I think this can be directly connected with the fact that the average fine imposed on convicted vendors instead of increasing steadily to a deterrent figure—as it should do—has actually decreased. To my mind, the continuance of the high proportion of adulterated samples shows conclusively that many vendors think that, on balance, it is more remunerative to take the risk of being caught and having to pay a small fine than to mend their ways and sell genuine unadulterated food. I feel strongly that a few maximum fines (Rs. 500) with the alternative of a substantial term of imprisonment might make a great difference. As it is, it is only on rare occasions that convicted vendors chose imprisonment as an alternative to the fines which are paid, presumably, out of the illegal profits made by food adulteration."

(For "Our Bombay Letter" See page 186)

presence of a high degree of uterine wall tension, no good and perhaps harm may result. From this study, it would seem then that the obstetrician should utilize extremely small doses of posterior pituitary extract at all times, using small doses more often, rather than larger ones less frequently; that the tension of the uterine wall should be a guide in deciding whether or not to use the drug, and certainly if the tension is increased considerably, the dose, if given at all, should be extremely small.—(*Clinical Abstracts*)

PITUITRIN SHOCK. Milton H. Adelman, M.D., and Benjamin B. Lenon, M.D., *Am. J. Obst. & Gynec.*, 41: 652-659, April, 1941.

Shock appearing after the administration of a posterior pituitary preparation is an infrequent but no longer rare experience. A review of the pertinent literature and of the 7 cases now reported tends to indicate that its frequency is far greater than suspected and reported. Pituitrin shock may be a manifestation of (a) anaphylaxis, frequently due to previous sensitization with a posterior pituitary preparation, or (b) coronary artery constriction with resulting myocardial anoxia, cardiac dilatation, and decreased cardiac output. Therapy in the unanesthetized patient, whether due to anaphylaxis or coronary constriction, should consist of adrenalin (or ephedrine), intravenous fluid, and oxygen. In the patient anesthetized with ether or cyclopropane, adrenalin (or ephedrine) might prove deleterious to the patient, and therapy should be confined to the use of intravenous fluid and oxygen.

It is the problem of the surgeon and the anesthetist to reduce the incidence of pituitrin shock to a minimum. The intrauterine injection of pituitrin to diminish bleeding during hysterectomy or cesarean section is a poor and dangerous substitute for careful and scrupulous hemostasis; the possibility of an intrauterine injection being made into a vein is great. When repeated injections of pituitrin are contemplated, as in post-operative abdominal distension, conservative doses should be the rule, averaging 10 to 20 pressor units for the individual dose. The use of pituitrin as an analeptic in spinal anesthesia and shock is unsafe, carrying as it does the danger of coronary constriction; however, it may be effectively and safely used for such purposes when combined with ephedrine. The use of pituitrin in patients with evidence of coronary insufficiency should be interdicted. Finally, when the use of pituitrin is essential, care must be taken that it is not given intravenously—this by a simple aspiration test in two planes before injecting.—(*Clinical Abstracts*)

PLASMA PROTHROMBIN VALUES OF MOTHERS AND INFANTS AT DELIVERY. Further Studies Including Comparative Values of the Umbilical Arteries and Veins. Robert F. Norris, M.D., and Matthew C. Bennett, M.D., *Surg., Gynec. & Obst.*, 72: 758-763, April, 1941.

By the Quick method the average plasma prothrombin value of 85 mothers at delivery was greater than the normal controls. The average value of their infants was less than the normal controls. No relationship between the level of prothrombin in mother and baby could be demonstrated. It is unlikely, therefore, that prothrombin passes directly from mother to fetus.

A comparison of the plasma prothrombin levels of the umbilical artery and vein in 35 cases showed that in approximately 70% of these cases the prothrombin value of the vein exceeded that of the artery. If this apparent difference between artery and vein is a real one it is possible that prothrombin may be formed by the placenta. The fall in the prothrombin level of some infants following birth may be due in part to the removal of the placenta as a source of supply.—(*Clinical Abstracts*)

BLOOD PROTHROMBIN LEVELS IN THE NEWBORN. Carl P. Huber, M.D., and Jack S. Shrader, M.D., *Am. J. Obst. & Gynec.*, 41: 566-574, April, 1941.

A study of the clinical records combined with laboratory data concerning the clotting activity of the blood of 530 newborn infants confirms the previously reported observation that there is a physiologic decrease in prothrombin activity during the early days of the neonatal period with a spontaneous return to

normal levels during the first week of life. This decrease in clotting activity can be prevented by the administration of a vitamin K preparation to the infants during the early hours of the neonatal period or to the mother during the course of labour.

During the period of this study no typical case of hemorrhagic disease of the newborn was encountered. There tendencies have become manifested. Without exception, these infants have shown a level of clotting activity below 10% of normal. The hemorrhagic manifestations have included bleeding from the cord stump, vomiting of blood-streaked mucus, and the passage of bloody mucus through the rectum. In 2 instances convulsive movements were also present. In no infant have similar hemorrhagic tendencies developed in the absence of a low clotting activity of the blood. All of this group responded to the administration of 2 methyl-1, 4 naphthoquinone by a prompt increase in the clotting activity and a cessation of the hemorrhagic tendencies.

Such a group of infants offers confirmatory evidence for the statement that hemorrhagic disease is due to a prothrombin deficiency. It is true, however, that infants may show a similar prolonged low level of clotting activity without any evidence of hemorrhage. Perhaps infants in this group should be looked upon as subclinical cases of hemorrhagic disease. Perhaps there is some other factor necessary to precipitate the hemorrhage.

A simple clinically applicable test for the rapid assay of the clotting activity of the blood is presented. This test gives a satisfactory clinical assay and will indicate those infants in whom a critical deficiency of prothrombin exists, but does not give an accurate determination of the prothrombin level in the blood.

METHOD: Twenty cubic millimeters of a thromboplastin extract are placed on a clean glass slide. Blood is obtained by heel puncture from the infant to be tested. Twenty cubic millimeters of blood are immediately mixed with the drop of thromboplastin extract. The drop is pricked every second with a stylus until a firm fibrin strand adheres to the point. The interval in seconds is recorded as the prothrombin clotting time. A normal control reading is obtained in the same manner using adult finger blood. The prothrombin level is expressed in per cent of normal:

$$\frac{\text{Clotting time of control}}{\text{Clotting time of unknown}} \times 100 = \frac{\text{Clotting activity in per cent of normal.}}{--(\text{Clinical Abstracts})}$$

SOME OBSERVATIONS ON THE GYNECIC EMPLOYMENT OF EQUINE GONADOTROPINS. E. G. Hamblen, M.D., *Am. J. Obst. & Gynec.*, 41: 495-513, March, 1941.

Classical adolescent hypo-ovarianism is one of the most clear-cut syndromes in endocrine gynecology. No or minimal sexual maturation occurs. The internal and external genitalia remain infantile or juvenile in size and character. Adolescent differentiation of the breasts does not occur or progresses to a minimal degree. Menarche does not occur. The epiphyses of the long bones remain open well past the 17th or 18th year of age and there develops frequently a characteristic satural overgrowth. It is assumed commonly that the ovarian failure of these patients is intrinsic to the ovaries, i.e., the ovaries are regarded as being structurally incapable of responding to the tropic influences of the pituitary. However, since it is frequently impossible to diagnose hypopituitarism, especially of a functional nature, these patients should be given a trial of equine gonadotropic therapy. If negative responses are given, intensive estrogenic therapy should be instituted, and from time to time the patient should be given other trials of equine gonadotropic therapy. Apparently in some instances ovarian receptivity is increased by the production of uterine and endometrial proliferation, resulting from sterol therapy. Unless complete ovarian responses can be initiated in these individuals, the establishment of complete ovarian function, compatible with fertility, is impossible.

In patients with oligomenorrhea, amenorrhea, and menometrorrhagia of functional nature, associated with undesired lowered fertility or sterility, it is often necessary to initiate and maintain cyclic bleeding with ovarian sterols while patients are being tested with cyclic gonadotropic therapy in attempts to secure pregnancies. Our results from cyclic therapy with equine gonadotropins under these circumstances have been

uniformly poor. The employment, however, of a one-two system of cyclic gonadotropic therapy, comprising 10 days of equine and 10 days of chorionic gonadotropins, has resulted in a number of unequivocal therapeutic salvages. This form of therapy is of little value in regulating irregular flowing.

There is little need or rationale for the use of gonadotropins in women of climacteric age. The ovaries of these women are intrinsically refractive, and their pituitaries are either functioning normally or at higher levels than normal.

When pregnancies are salvaged from women with ovarian sterility by gonadotropic therapy, abortion or miscarriage is likely to occur from intercurrent ovarian failure. It is suggested that each of these patients should be handled as though she gave a history of having had previous abortions.—(*Clinical Abstracts*)

THE SYMPTOMATIC TREATMENT OF FUNCTIONAL DYSMENORRHEA BY AMPHETAMINE (BENZEDRINE) SULFATE. Z. Eileen Taylor, M.D., *New England, J. Med.*, 224: 197-200, January 30, 1941.

Amphetamine (Benzedrine) sulfate, in doses of 5 to 20 mg. a day was used in the treatment of 34 cases of essential dysmenorrhea. Four of these are described in detail. It was found that the drug relieved pain, fatigue and depression in cases in which other measures had failed. This finding was confirmed by the substitution of placebos or other medication during alternate periods.

In the 30 additional cases, 40% obtained complete relief and an equal number of moderate relief. In 16% the apparent benefit of the drug was not maintained, and in 2 cases (6%) the patients reported that they were worse under medication. It is concluded that amphetamine sulfate is a valuable drug for the treatment of functional dysmenorrhea and that it is well adapted to ambulatory patients.—(*Clinical Abstracts*)

DEEP CAUTERIZATION OF THE CERVIX: A Factor in Reducing the Mortality of Hysterectomy. A Six-Year Survey. B. Z. Cashman, M.D., and John S. Frank, M.D., *Am. J. Obst. & Gynec.*, 41: 379-390, March, 1941.

The advocates of total hysterectomy are correct in maintaining that a subtotal hysterectomy which leaves an infected cervix, or one that becomes infected subsequently, is an incomplete operation. But many of these surgeons do total hysterectomy in selected cases, and subtotal hysterectomy in handicapped patients and in technically difficult cases, with the result that in the latter group no treatment of the cervix is carried out, and the patient is left with an infected cervical stump. For the past six years the authors' mortality for subtotal hysterectomy has been below 1% in consecutive, unselected cases and the cervix has been adequately cared for by preoperative deep cauterization in all but 3 cases. There has been no necessity for subsequent treatment of the cervical stump for inflammation or neoplasm.

It is suggested that infection plays a prominent part in deaths from hysterectomy. Chronic cervicitis is a source of infection. Deep cauterization of the cervix, as the first stage in hysterectomy, eliminates this source and reduces the mortality. It is advisable in both total and subtotal hysterectomy. It eliminates future inflammatory trouble with the cervical stump and prevents carcinoma. Deep cauterization of the cervix followed immediately by subtotal hysterectomy has made total hysterectomy unnecessary for benign conditions of the uterus.—(*Clinical Abstracts*)

CANCER OF THE CERVIX FOLLOWING SUPRA-VAGINAL HYSTERECTOMY. George Gray Ward, M.D., F.A.C.S., F.R.C.O.G. (Hon.), *Am. J. Obst. & Gynec.*, 41: 660-663, April, 1941.

There is still a difference of opinion as to the advisability of doing a total hysterectomy in all cases if the uterus is to be removed as a prophylactic measure against a possible carcinoma developing in a retained cervix. All will agree that the total operation offers the best protection from cancer, although cancer of the cicatrix in the vaginal vault occasionally occurs. However, many surgeons believe that there is a definite increase in the postoperative mortality and morbidity in the total operation as compared to the subtotal, and that the incidence of stump cancer

is less than the increase in mortality percentage, especially where there is no disease or injury of the cervix. Our incidence in 879 cases of cancer of the cervix was 6.9%. There is also a difference of opinion as to the cure rate obtainable in these stump cases. Prominent authorities have argued both sides of these questions. The salvage of stump cases for five years in Scheffey's, Behney's and our clinic was approximately twice that achieved with general carcinoma of the cervix in the same clinics.

The author suggests that the total operation is to be preferred because of the higher incidence of stump cancer than was formerly thought to occur, and of the frequent association of cancer with fibroids. Yet it must be recognized that in average hands there is more danger of a higher mortality, and such complications, as injury to the bladder and ureters, infection, and lack of vaginal support than in skilled hands. Also the expert surgeon will meet cases with a definite increase in risk due to obesity, adhesions, fixation, or systematic disease, which makes the subtotal operation a safer and wiser procedure. If, however, the subtotal operation is considered, a careful study of the cervix should be made and appropriate treatment used if indicated.

In all subtotal operations, the possibility of cancer should be borne in mind, and a careful follow-up for an extended period of time is essential for safety.—(*Clinical Abstracts*)

THE MANAGEMENT OF CANCER OF THE BREAST WITH PRE-OPERATIVE AND POST-OPERATIVE IRRADIATION. Samuel George Schenck, M.D., *Radio-logy*, 36: 315-323, March, 1941.

The following clinical "stages" of breast cancer is suggested: In Stage 1, the tumor is usually small, freely movable, and confined strictly to the affected breast. No regional nodes are felt. In Stage 2, firm nodes are palpable in the axilla, the primary tumor is usually larger than 3 cm., and partially fixed to the skin and the underlying tissues. When the breast is edematous or its skin has an inflamed appearance, when the tumor is very large, when it is more or less fixed to the skin and underlying structures, when adherent nodes are palpable in the axilla and in the supraclavicular fossa, or distant metastasis is present, the case is regarded as belonging to Stage 3. Recurrent cancer is considered to represent Stage 4.

As in cancer in any part of the body, each patient must be individualized and the most rational course of therapy for each subject in the light of present-day knowledge and experience should be outlined and followed. Immediately after the diagnosis of breast cancer is suggested clinically and before the report of the biopsy is received, the patient is given a course of high voltage roentgen treatments, cross-firing the entire affected breast through two portals. This series of treatments is all-important, and no compromise with the administration of a short course or an inadequate series should be tolerated. In Stages 1 and 2 of breast cancer, radical surgery is indicated from 6 to 8 weeks after irradiation, to be followed up by a second adequate course of roentgen treatments from 4 to 6 weeks later. Roentgen sterilization of ovaries tends to improve the end-results, and is advisable at least in all patients who are still menstruating. Patients classified in Stage 3 are mainly a radiologic problem. They should receive as thorough a course of roentgen treatments as their condition permits, remembering that the individual must be treated as well as the disease. This is followed up by conservative surgery or radium therapy as the case indicates. Further roentgen therapy is given as it becomes necessary for the relief of pain and discomfort. The treatment of recurrent cancer (Stage 4) is usually a radiologic problem requiring radium or X-rays or both.

Radiation therapy is a highly technical field, and only expertly trained specialists should be entrusted with its application in the management of disease.—(*Clinical Abstracts*)

THE TREATMENT OF COCCYDYNIA. George S. King, M.D., *Indust. Med.*, 10: 14-15, January, 1941.

The condition known as coccydynia covers a multitude of symptoms rather than a distinct disease. The term as commonly applied refers to pain in the coccyx or more properly in the coccygeal region. The pain is usually constant and distressing, making any act of sitting a painful procedure. Every known remedy has been tried and prescribed for this condition. Until a few years ago it was impossible to promise the patient much except palliative relief in the ultimate hope that the

condition would clear of itself if and when the patient's condition of resistance improved. In persistent and obstinate cases of coccydynia, the only relief that appeared to be permanent was the removal of the coccyx in part or entire and in many cases even this surgical procedure failed to give the desired result.

An original line of treatment is described which has given absolute satisfaction in relieving obstinate cases of coccydynia where the X-ray shows no evidence of bony pathology in the coccyx:

The patient is placed upon the operating table on the left side in Simm's position. The outline of the coccyx is carefully noted by palpation and the area directly over the coccyx and its tip is thoroughly painted with tincture of iodine. A total of 10 c.c. of 2% solution of novocaine is then injected into the tissue directly adjacent to and on both sides and around the tip of the coccyx. This solution is allowed to remain in the tissue for about ten minutes at which time the tissue is absolutely non-sensitive. Then again using a 10 c.c. syringe and needle, and following the original technique 10 c.c. of a hypertonic solution is injected in the same manner and in the same places that the novocaine solution was injected. There is seldom any reaction, not even a delayed painful reaction from the hypertonic saline. The relief from the pain of coccydynia is immediate and usually lasts for a period of five to ten days. As soon as and if the pain makes its reappearance, the same procedure is repeated. Usually five or six of these injections at weekly periods is sufficient to permanently clear up the average case of coccydynia.—(Clinical Abstracts)

THE LOCAL USE OF SULFANILAMIDE, SULFAPYRIDINE AND SULFAMETHYLTHIAZOL. J. Albert Key, M.D., and Charles J. Frankel, M.D., *Ann. Surg.*, 113: 284-297, February, 15, 1941.

Animal experiments are reported which show that: (1) sulfanilamide, sulfapyridine and sulfamethylthiazol, in the form of powder, are well tolerated by the joints, muscles and connective tissues. (2) In solution, they are well tolerated by the joints, pleura and peritoneum. (3) They are bacteriostatic, but not bactericidal under the conditions present in a wound and should be sterilized before they are placed in a clean wound. (4) They slightly inhibit the early healing of the wound, but do not unduly prolong the period of healing.

In vitro observations, in the literature, suggest that local implantation, which assures a temporary high local concentration of the drug, is an effective method of preventing infection in clean and in contaminated wounds and of treating open infected wounds. Clinical experience indicates that this is true.

The local implantation of sulfanilamide powder not only in contaminated wounds, but also in clinically clean operative wounds where infection is especially to be feared or would be especially undesirable is advocated.—(Clinical Abstracts).

VITAMIN K AND CLOTTING TIME. F. W. Fox, D.Sc., *The South African Medical Journal*, March 22, 1941.

During work on sterol metabolism with the chick, Dam in 1929 observed that diets deficient in certain respects gave rise to a disease which closely resembled scurvy. In this disease, spontaneous bleeding occurred in the affected animals, clotting time was markedly prolonged, and the plasma prothrombin was reduced to extremely low levels. In 1935 she and her co-workers suggested that this condition, which failed to respond to ascorbic acid administered either orally or subcutaneously, was a deficiency disease brought about by exclusion from the diet of a certain anti-haemorrhagic factor which she termed vitamin K.

By 1939 rich concentrates of this new vitamin had been obtained from lucerne by Dan and Karrer in Europe and by Doisy in America. In the same year a crystalline substance, showing marked vitamin K activity, was isolated by Doisy from putrefied fish meal.

Rapid progress was then made regarding the chemistry of these substances, which have now been differentiated into two main groups, i.e., K₁ occurring in green leaves and K₂ produced during the putrefaction that occurs when substances such as fish meal, rice, bran, etc., have been stored in a moist condition. Apparently a large number of bacteria, including *B. coli*, are capable of synthesizing vitamin K, and this explains the frequent occurrence of the vitamin in the faeces of many animals, including human beings (compare the phenomena of "refection" and vitamin B₁).

Chemically vitamin K is highly sensitive to alkalis, light and extreme heat; when treated with alcoholic alkali it yields a beautiful but transient purple colour, which is being developed as a method for its chemical estimation. Various methods for its estimation by biologic means have been investigated; these are based on the prevention or restoration of a lowered prothrombin value in the blood of suitable animals, usually chicks. No toxic effects have been observed when the naturally occurring vitamin K is given in large doses to human beings. So far no toxic effects have been noticed when the various analogues have been used in the doses usually required.

A normal clotting time depends, among other things, upon the presence in the blood of an adequate amount of prothrombin. The most satisfactory way of measuring the prothrombin index of the blood is the subject of some discussion at the present time. Usually the method first described by Quick in 1935 is employed.

It now seems well established that in most diseases associated with a lowering of the prothrombin index there is some disturbance of the absorption or metabolism of vitamin K.

This has been shown to occur in at least three different ways:—

1. *Inadequate intake in the diet.* In 1939 Scarborough obtained evidence of K deficiencies in humans suffering from other dietary diseases such as scurvy, beri-beri and pellagra. Similar evidence has been forthcoming for rats and mice, and, as already mentioned, for chickens. Normally it would appear that some vitamin K is produced in the human intestines owing to bacterial action.

In the newborn a deficiency may arise from the lack of an adequate supply of vitamin K in the diet of the mother. It is claimed that a slight hypoprothrombinaemia frequently occurs in the newborn child. This is much more marked in (a) icterus gravis neonatorum, (b) hydrops congenitus and (c) anaemia neonatorum, and responds dramatically to treatment with the vitamin K.

2. *Faulty absorption.* Faulty absorption of vitamin K from the intestines may also give rise to a hypoprothrombinaemia. This may be due to:—

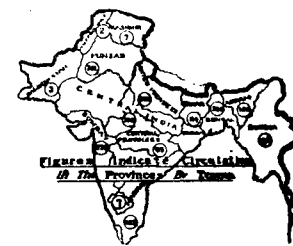
- Lack of bile of normal composition reaching the intestine, more especially a poor secretion of bile salts which are required to ensure absorption of this fat-soluble vitamin, e.g., biliary fistula.
- Obstruction of the bile-ducts, e.g., as in obstructive jaundice.
- Intestinal lesions, e.g., short-circuiting surgical procedures, intestinal obstruction.
- Severe diarrhoea, e.g., as in ulcerative colitis, sprue.
- Abnormal absorptive surface in the small intestine, e.g., coeliac disease.

3. *Faulty metabolism of the absorbed vitamin.* It appears that the vitamin is converted into prothrombin in the liver and the rate of prothrombin formation is thought to follow the ordinary laws of mass action. Hence various disturbances of the liver may interfere with or entirely prevent the synthesis of prothrombin. Such interference appears to occur in diseases such as cirrhosis of the liver, liver atrophy, and chronic hepatitis. When liver disease can convert it into prothrombin, while others cannot. Not only are tests of this kind thought likely to be of prognostic value, but they may afford new means of detecting liver inefficiency.

Clinical applications will be sufficiently obvious from what has already been said. Numerous papers have appeared in which one or other of the substances mentioned has been used to treat conditions associated with a hypo-prothrombinaemia; there has been a most noticeable unanimity regarding the excellent results obtained. It will be clear, however, that no response can be expected when extensive liver damage has occurred; in such cases the "factory" that forms prothrombin is disordered and the disease is not essentially one of vitamin K deficiency. Nor is vitamin K of any value in the treatment of haemophilia or thrombocytopenic purpura, for in these diseases there is no deficiency of vitamin K and no deficiency of prothrombin.

It is unlikely that all the conditions which may benefit from the use of vitamin K have yet been investigated; thus claims are already being made for the treatment of certain types of haemorrhage from the upper gastro-intestinal tract. The essential finding would appear to be a lowered prothrombin index which is not due to a seriously damaged liver.

INDIAN MEDICAL JOURNAL



Journal of the All-India Medical Licentiates' Association

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Although our Organisation is ancient and extensive there is yet much room for further expansion and activities. A definite lull is visible in all Provinces, and this is perhaps due to the placing of primary importance on the redress of grievances of medical licentiates by the various Branches. Unless social and civic welfare, and clinical activities are undertaken by the Branches, they are not likely to draw the sympathy of the people and the Government, and unless such a sympathy is generated no attention to the redress of their grievances would ever be possible or paid. The ways and means by which optimum public attention and sympathy may be secured are:

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from good to better both in quality and circulation. The Editor can only edit, but is no alchemist to transmute brass into gold.

(3) Assume leadership or partnership in the social and civic welfare activities of the locality. Health Propaganda; Medical Relief during famine and floods; helping the Local Bodies in their Health Work; collection of data regarding diseases of greatest local prevalence; and many kindred activities are opportunities which no Branch should miss on any account. This type of work alone would raise the Licentiates in the estimation of the public and the Government.

(4) Hold regular clinical meetings, discuss periodically the conditions of practice and evolve concerted plans of mutual help in your Branch.

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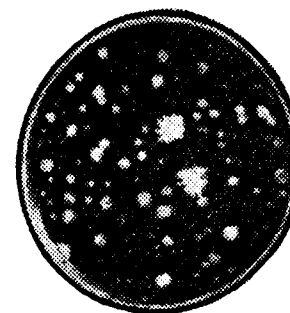
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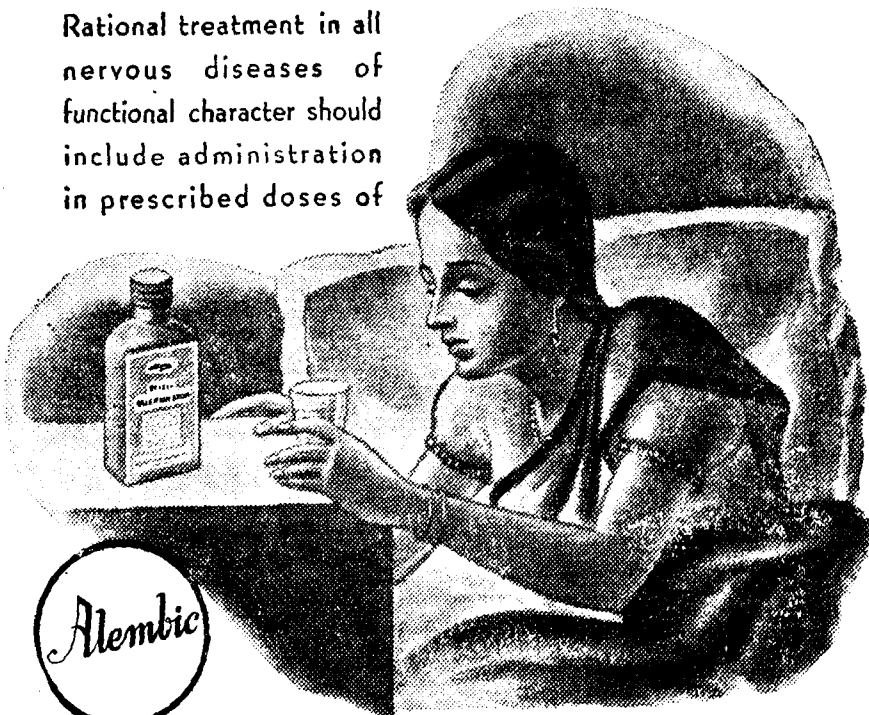
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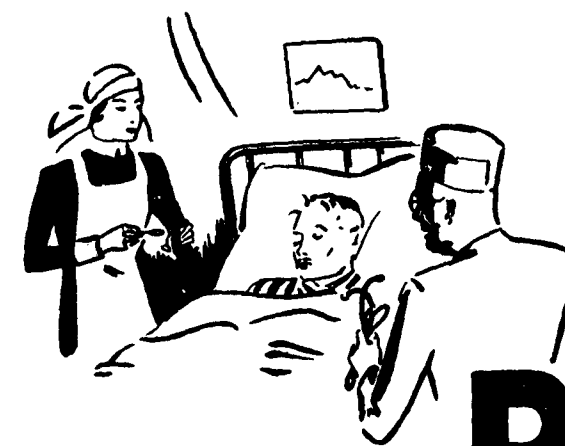
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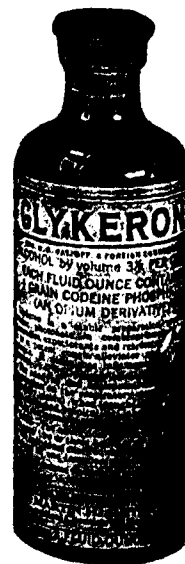
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