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ADDRESSES AND ARTICLES

Emergencies in Anaesthesia and their Treatment*

● **Dr. D. M. Thergaonkar, L.M.P. (C. P.)**

[For some time anæsthetist, Mayo Hospital, Nagpur. Now Demonstrator in Pharmacology, Robertson Medical School, Nagpur.]

I have been giving anæsthesia of various sorts for the last four years and this paper is an outcome of this experience, though short. I shall deal in this paper only with the emergencies of anæsthesia and their treatment.

There comes a time to all anæsthetists when the death of the patient appears imminent. The main occasion in which death during anæsthesia is imminent is an operation which is performed as being the only means of saving a patient's life and entails bad risks both for the surgeon and the anæsthetist. In other cases it is the failure on the part of the anæsthetist to observe or interpret such untoward signs as may have been present. For the successful treatment of such cases, it is of utmost importance that the anæsthetists should not wait until the patient is *in extremis*. The futile administration of oxygen and Co_2 after the stoppage of respiration or the injections of various cardiac stimulants after the cessation of heart-beat is still seen too frequently.

Emergencies in anæsthesia have to be considered separately for each sort of anæsthesia. I shall first enumerate the various methods of anæsthesia that we generally use.

1. Inhalation Anæsthesia—chloroform, ether, gas etc.
2. Spinal Anæsthesia.
3. Evipan Sodium Anæsthesia
4. Local Anæsthesia.

INHALATION ANÆSTHESIA

Emergencies in this anæsthesia fall into two groups: (a) *Partial or Complete stoppage of respiration* (blue asphyxia) and (b) *Failure of Circulation* (white asphyxia). These two are so closely related to each other that unless one is remedied early the other will follow soon after.

When the respiration is primarily at fault and if breathing has actually ceased, it will be a matter of time before the heart ceases unless effective measures are taken at once. If respiration is obstructed, a strain will be thrown on the patient's heart, and deficient oxygenation, if present for any length of time, leads to heart failure in feeble or fatty patients or in patients whose heart is already weak by chronic valvular lesion or myocardial degeneration. To treat the heart we must treat the lungs, and obstruction must be relieved by whatever means possible.

Respiratory failure: The chief causes of respiratory difficulties according to their manner of affection are:—

1. Obstruction to air passage.
2. Interference with the respiratory movements.
3. Interference with the nervous control of respiration.

Obstruction to air passages: In this division we generally include such conditions as spasm of the upper respiratory tract, presence of foreign bodies such as teeth, tonsils, blood clots, pus, mucus, vomited material etc., in larynx and trachea; swelling or œdema of the glottis, falling back of tongue and so on.

Treatment: Relieve the condition at once. Condition of spasm usually occurs in the early stages of inhalation anæsthesia due to greater concentration of chloroform and a few breaths of air and oxygen generally relieves this condition. Tongue should be held forward and mouth to be kept forcibly open. The patient's head should be lowered at once. If foreign body is present, remove it. Generally during operation of tonsils and adenoids blood accumulates near the entrance of air passages in the lungs and patient gets cyanosed and stops breathing. In such cases lower the patient's head at once. In fact small children should be held by their legs. If larynx is suspected to be impacted, tracheotomy should at once be perfomed. Lowering the head is the most important thing and is the best means of removing fluids. Intratracheal ether or administration of anæsthesia by nasal catheter should be attempted in cases of operation near the mouth where bleeding is likely to occur and obstruct the air passage. In such cases pharynx will have to be well packed with gauze. In conditions as Laudwig's angina tracheotomy must be performed and intracheal administration of anæsthesia should be tried.

The falling back of the tongue on the posterior wall of pharynx, when the patient is under anæsthesia which relaxes the muscles of the floor of the mouth, has to be prevented by turning patient's head to one side, when the tongue falls on that side. If this is not sufficient hold the tongue with pointed tongue forceps. It generally suffices to place a finger behind the angle of the jaw and press forward. Most of these difficulties are now-a-days overcome by the use of what is known as *Heweti's*

* A paper read at the 30th Conference of A.I.M.L.A., held at Bombay on 23rd Dec. '40.

air way. The flattened aluminium ring rests between the teeth or gums, the curved rubber tube holds the tongue forward into its concavity and the soft open end lies immediately over the glottis. Even when the airway is used it may be necessary to hold the jaw forward by slight pressure.

Interference with the respiratory movements may be due to pressure of instruments on the patient's stomach or due to pressure of viscera or diaphragm in high Trendelenburg position or due to pressure on one side of the thorax if the opposite lung is out of action. Surgeons often forget that although abdomen makes an excellent instrument table, it is not intended to serve as such. 2-3 lbs. of cold steel instruments placed on the epigastrium of an already shocked patient will certainly cause dyspnœa. With very fat people suffering from fatty heart, a high Trendelenburg position sometimes causes cyanosis and difficulty in breathing during anæsthesia. In such cases, the anæsthetist should give oxygen to the patient and request the surgeon to keep the patient tilted for as short a time as possible. Patients with one functioning lung should be suitably supported with pillows under shoulder in order to enable their chest wall to expand freely.

Interference with nervous control of respiration may be brought about by (i) toxæmia due to overdose of chloroform or ether (ii) anæmia from excessive fall of blood pressure (iii) reflex inhibition due to shock such as somtimes occurs when operation is started on a partially anæsthetized patient. Treatment is practically the same for all cases which is: Discontinue administration of anæsthesia at once. Lower the patient's head. Oxygen and Co_2 (5%) should be at once administered and artificial respiration continued. A powerful stimulus such as stretching of the anal sphincter will often start respiration again. Two drugs are particularly useful and both should be injected at once. Strychnine gr. 1/30 is valuable for its action on the motor cells of spinal cord and lobeline gr. 1/10 is a powerful stimulant of the respiratory centre. Coramine, epinalin etc. are also useful.

Artificial Respiration: As soon as patient stops breathing anæsthetist requests the operator to exert rhythmical pressure on the lower thorax. If after 2 to 3 minutes patient does not breathe the field of operation should be covered with a sterilised towel clipped securely to the skin and Silvester's method of artificial respiration is carried out slowly, systematically and symmetrically. Alternatively and probably more effectively direct method of artificial respiration may be employed as follows:—

Airway is put in the mouth as usual and the anæsthetist blows into and inflates the patient lungs. There is no resistance. Air easily enters and inflates the lungs and is expelled automatically or gurgles out with a gentle pressure on abdomen or chest. The process is repeated every 4 or 5 seconds until normal rhythmical respirations are restored.

Circulatory difficulties: (or white asphyxia): These may be due to (1) direct effect of chloroform or ether, (2) effect of operation and (3) failure of respiration. In cases of circulatory failure, the anæsthetist usually gets warning by the presence of rapid and possibly irregular pulse and presence of cyanosis.

Effect of Anæsthetic: When this is responsible for cardiac failure myocardial degeneration or a poorly compensated valvular lesion is generally present. Chloroform acts as a poison to the heart muscle and its action is accentuated by cyanosis. Overdose of chloroform is also liable to produce cardiac inhibition and bulbar paralysis. In cases of status lymphaticus anæsthetic is always held responsible for accidents. Treatment in such cases is rather difficult. Keep the patient's head low so as to supply the brain with blood. Effort must be made to eliminate the anæsthetic. For this purpose Co_2 (5%) should be administered. If the heart has not actually stopped, cardiac stimulants such as strophanthin gr. 1/240, Caffein sodium benzoas 2 cc. or coramine 1·7 cc. should be injected intramuscularly. If the heart has ceased beating, adrenaline hydrochloride 10 minims (1 in 1000) sbould be injected into the 4th inter-space at the upper rim of the 5th rib close to sternal border. Needle should be directed backwards and slightly medially. Intra cardiac injections must however be made within the first five minutes after the heart has stopped beating. After intra cardiac injection artificial respiration is resorted to again. If after one minute after the cardiac injection, heart does not beat, the surgeon should at once prepare for the last resort, and that is cardiac massage. Mid line epigastric incision is made, abdomen opened, and with the right hand in the abdomen and the left on the costal margin efficient cardiac massage can be given. The alternative method of grasping pericardium and intermittently squeezing the ventricles should be reserved for those cases with a rigid costal wall. In order to reach the pericardium an incision is made on to the costal cartilages from the abdominal aspect, insertion of diaphragm is freed, and right arm is passed into the thorax and grasps the heart within its pericardium. If successful one feels cardiac flutter.

Effect of operation: Failure of circulation during anæsthesia due to the effect of operation is either due to shock, hæmorrhage or due to embolism. Shock must be prevented by warmth, fluids and morphine.

Transfusion of blood during operation is the best method of giving fluid and we have tried this in a few cases in our hospital. If this is not possible, saline is given intravenously or per rectum. Foot of the bed should be raised on block as soon as possible in the ward and morphia given. Pulmonary embolism during anæsthesia is fortunately rare. If it occurs, it occurs suddenly. Patient gets cyanosed and there is immediate Cardiac failure. Anæsthetist can do but little.

Failure of respiration: Circulatory difficulty due to failure of respiration has already been discussed.

The following are the notes of a case in which, all these emergencies occurred:

Mrs. Sc., 33, Hindu female—very fat with a thick abdominal wall. Operated for hysterectomy. Blood pressure: S. 140 mm of Hg. D. 80 mm of Hg. Premedication: Morphine-atropine Injection ½ hour before operation and Epinalin ½..... and 1/100 10 minutes before spinal anæsthesia. 14 cc. of Percain (1 in 1500 sol. in 0·5% saline) between L 3-L 4—was the anæsthetic given. Patient was in high Trendelenburg position throughout the operation. While performing the difficult task of suturing up vagina and peritonizing the wound, the patient was by now complaining of wearing out of the anæsthesia. This was about 1½ hours after the commencement of spinal anæsthesia. Chloroform was supplemented. When the patient went into the surgical stage of chloroform she stopped breathing and pulse could not be felt. Hand was passed by the surgeon though diaphragm, but no heart beat was felt. Cardiac massage was given between intra-abdominal hand and the other on chest wall. After 2 to 3 minutes heart began to beat. Mouth to mouth respiration was given. 1 cc. of adrenaline was injected into the heart before cardiac massage. After 6 and 7 minutes of artificial respirations by direct method, patient began to breathe again. 20 cc. of 12½% glucose, with coramine 1·7 cc. was given I.V. and cardiac stimulants such as strychnine, digitalis, pituitrin and adrenaline were given intramuscularly. Co_2 was given to stimulate the respiratory centre. Abdomen was rapidly closed and patient returned to bed—more coramine was given intravenously. Pulse poor. Respirations Cheyne-stoke's type for first 6 hours, later on improved. Patient was unconscious and did not regain consciousness. In spite of treatment, patient died 52 hours after cardiac massage.

SPINAL ANÆSTHESIA

Spinal anæsthetics are now-a-days extensively used in most of the big hospitals. Some appear to be more dangerous than others. *The Chief danger is of collapse.* The useful point to remember is never to attempt spinal anæsthesia for operations above umbilicus. The three golden rules of preventing complications are (1) *Never attempt spinal anæsthesia if the systolic-blood pressure is lower than 105 mm. of Hg. and always take blood pressure in every case.* (2) *Always give preliminary injection of Epinalin or any such cardiac stimulants to counteract the fall of blood pressure*—and keep a 2nd dose ready for emergency. (3) *In feeble frail and under weight patients do not give the contents of whole ampoule.* Judgment and experience alone will enable you to decide how much dose will be sufficient for a patient of particular constitution. There are two danger periods in spinal anæsthesia. First is directly after the injection and second is 15 to 20 minutes after. The danger is the fall of blood pressure.

Treatment is to raise the blood pressure by cardiac stimulants such as coramine, epinalin, pituitrin and secondly, by lowering the head. Rectal hot saline or intravenous saline should be started at once.

EVIPAN SODIUM ANÆSTHESIA

E. S. is a barbituric acid preparation which is decomposed rapidly in body. If administered correctly it is free from danger. Remember that it should not be given in (1) Defective liver functions, jaundice and defective liver metabolism as this drug is metabolised in the liver. (2) *Advanced Kidney diseases* and retention of urine and (3) Low blood pressure, as this drug still further lowers the blood pressure. Best antidote in E. S. anæsthesia is intravenous strychnine gr. 1/60.

In overdose, Evipan Sodium affects the respiratory system. So, respiratory stimulants, such as Co_2 and coramine should be kept ready. Airway should always be used and should be kept in mouth till the patient regains consciousness.

LOCAL ANÆSTHESIA

There is practically no danger in filtration anæsthesia if given wisely. In fact, Hamilton Bailey says that a local anæsthetic—when it can be used—is the best of all. It is by developing this form of anæsthesia that we can look to reduction in mortality figures. The chief danger is of the local anæsthetic going into a vein during infiltration. Patient exhibits various nervous symptoms. The condition is overcome by stimulants.

CONCLUSIONS

Always remember that prevention is better than cure. The best method of prevention of fatalities under general anæsthesia is the maintenance of a perfectly free airway. If emergencies unfortunately should occur remember the two golden rules: (1) Keep the head low and (2) let the remedies be prompt.

Some Aspects of Modern Anæsthesia*

● **Dr. Sunil Krishna Basu, Anæsthetist, Campbell Hospital, Calcutta**

PREPARATION OF PATIENT FOR ANÆSTHESIA

Suppose operation is timed at 10 A.M. on Monday morning.

On Sunday morning the patient should receive a purgative which may vary according to the choice or habit of the patient, if he has no special choice, oleum recini one oz. is advisable. During the rest of Sunday he may be allowed to take light diet. During the day he may be allowed to move about in the room but no undue exertion should be undertaken.

Some authorities prefer administration of the purgative on Sunday night (instead of in the morning), others do not like to have the patients disturbed by any purgative at all.

In nervous patients or in those where there is natural tendency to insomnia a dose of some hypnotics, namely, bromide or sulphonal may be given on the previous night to ensure perfect rest.

At about 6 A.M. on Monday soap water enema is to be administered and nothing should be given by mouth before operation—but a cup of tea may be allowed by 7 A.M.

In gastro-jejunostomy, where alimentary tract is to be opened up, the patient should not be allowed any solid food even on the day before. A saline enema may be given an hour or two before operation.

Some surgeons like to administer bi-carbonate of soda with sugar or dextrose for two or three days before operation to prevent acidosis, others give 5% glucose solution by mouth *ad lib* on the day previous to operation.

Atropine sulph 1/120 gr. to 1/100 gr. should be injected at least 30 to 45 minutes before operation, in children the dose may be 1/200 gr. which is well tolerated.

The chief advantage is drying up of the secretions of the saliva and mucus from the respiratory mucous membrane. Another advantage is paralysing action of atropine on vagus nerve endings in the heart and bronchioles thus lessening the dangers of syncope.

As regards the administration of morphine hydrochlor, there is much controversy, but it has been almost unanimously admitted that morphia should not be administered before chloroform anæsthesia.

*Read in the 9th session of the Re-union, Campbell Medical School on 18-1-'41.

EFFECTS OF ANÆSTHETICS

The process of absorption of the vapour of these drugs from the air in the alveoli of the lungs into the blood is mechanical. It depends on physical process of diffusion through a membrane.

Reaching the blood stream from the alveoli the drug enters into loose combination with R.B.C., a small part being carried by the plasma. It displaces to some extent the oxygen carried by red blood corpuscles; in nitrous oxide gas this displacement is very considerable and is more dangerous than other anaesthetics. This is an important point to remember.

The respiratory centre is exquisitely sensitive to changes in Co_2 and oxygen tension in the blood and alveolar air. A trifling increase of Co_2 tension will lead to increased ventilation of the lung—the increase being mostly in the depth and not the rate. Similarly a fall of Co_2 content of the blood will lead to decreased depth of respiration or even to a temporary cessation.

Alteration of oxygen tension leads to changes in the ventilation. Oxygen starvation stimulates the centre to increased action. Increase here is more in the rate than in the depth of respiration. Respiration is therefore rapid, shallow and later on jerky and intermittent. In the absence of oxygen the centre cannot survive long a few gasps followed by total cessation is the ultimate result.

In actual practice the lack of Oxygen with Co_2 excess is met with and quick and shallow breathing of oxygen want is very important and should not be confused with deep breathing of Co_2 excess.

The anæsthetics paralyse the more highly developed parts of the brain first, then the less developed ones. Before any brain centre succumbs it passes through the stage of excitement.

The first centres to be affected are those of thought and perception; muscular sense and coordination next becomes affected. Special sensations are at this stage lost, but auditory sense is the last to go. Muscle function is next lost. At this stage all movements cease. The reflexes disappear at varying stages. Lastly the vital medullary centres, respiratory, vasomotor and cardiac are also affected—i.e., when we have passed beyond the stage of proper anæsthesia into that of overdose.

The concentration of ether needed to produce perfect anæsthesia is 116 Mg. per 100 C.C. of blood and 37·5 mg. per 100 c.c. in case of chloroform.

INTRA-TRACHEAL ANÆSTHESIA

In this method ether vapour is directly introduced in the trachea, through a tracheal catheter. This method is useful especially :—

(1) In all cases of operations about the mouth face, jaw, tongue, throat, thorax, lungs.

(2) Operation in which obstruction to the respiratory passage may be expected.

(3) Most operations of the head and neck except those for toxic-goitre.

(4) Prolonged upper abdominal operations where shallow respiration is desirable.

(5) In laminectomy and nephrectomy where postural difficulty hampers other modes of anæsthesia.

Apparatus : Any type of gas oxygen apparatus may be used for this purpose. This apparatus is costly and may not be available everywhere. So open ether or chloroform may be given by means of Hahn's cone connected by a wide bore tube to inhalation tubing. The Han's cone may again be better substituted by an ordinary wide mouthed enamel funnel to the narrow end of which is attached a wide bored rubber tubing which is again joined to the intratracheal catheter, by a metallic connector. The mouth of the funnel is to be covered with 8 or 10 layers of gauze and ether is to be dropped fitted to any ordinary 6 oz. phial.

Technique : The patient is prepared as usual for general anæsthesia and anæsthetised preferably by chloroform to avoid a collection of mucus which may obstruct the view. After complete relaxation of the jaw being produced the laryngoscope is to be introduced. Regarding the position of the head there is some controversy. Some keep it in the normal position neither extended nor flexed, others keep the head hanging from the edge of the table. The laryngoscope being held by the left hand, is passed along the base of the tongue in the middle line applying slight pressure in the upward direction. The epiglottiss comes into view and is held forward by the curved end of the laryngoscope which is then passed further down bringing the cords into direct view. The catheter is then passed through the laryngoscope into the larynx by the right hand.

It is essential that the opening of the larynx should be identified clearly and that the catheter be seen to pass into the larynx. When the catheter has entered the larynx up to a suitable distance as is indicated by the mark upon it, the bifurcation of trachea being about 26 c.m. from the incisor teeth, the laryngoscope is withdrawn. The wide bored rubber tube is then connected with catheter through the intervention of a connector and ether is dropped on the gauze in the mouth of the funnel.

At first the degree of concentration of the vapour should be low or else irritation will result, evidenced by spasm and cough. Strength of the vapour is gradually increased by adding the ether at shorter intervals until necessary concentration is attained.

In the majority of cases, course of anæsthesia is smooth and uneventful—the pulse is good—Respiration quick and regular.

The advantage of this method is less chance of shock due to absence of straining, perfect anaesthesia and perfect aeration.

SPINAL ANÆSTHESIA

By this method the anæsthetic fluid introduced into the subdural space acts upon the roots of the spinal nerves and the rami communicantis, blocking nerve conduction to the region innervated thereby.

The common drugs used may be classified as follows:—

(A) Solution heavier than C. S. fluid.

I. Barker's solution; i.e., 5% stovaine, 5% Glucose } 1 to 1·5 c.c.

II. Stovaine solution 10% in saline ·4 to ·5 c.c.

III. Duracaine 10% planocaine with ghadin and Glycerine.

(B) Solution lighter than C. S. fluid.

I. Novocaine 2-3 c.c. of 10% solution.

II. Percaine—In solution with normal saline ·5% and 1 in 1000 adrenaline.

III. Duracine light solution.

IV. Spinocaine—Novocaine 100 mg.
Strychnine 1·1 mg.
Solvent containing alcohol.
Amylo prolamin
Sterila water.

Technique of injecting the solution : If heavy solution is to be injected the patient may be asked to sit on the edge of the table with his thigh and head flexed. But this sitting posture is not preferred by majority of the surgeons who like lateral position which is more comfortable and less risky. Lumbar puncture is made as usual with all aseptic precautions. When about 1 c.c. of the C.S. fluid has come out, the syringe containing the anæsthetic solution is attached to the cannula and a small quantity of C.S. fluid withdrawn into the barrel, then this diluted solution is pushed in. The needle and cannula is withdrawn, the site of puncture is sealed with Tr. Benzoin and the patient is placed on his back. If a solution heavier than C. S. fluid is injected the head of the operation table is to be slightly raised on the other hand if a solution lighter than C.S. fluid, is injected the foot end of the table is to be slightly raised. After five to ten minutes the anæsthetic effect is manifested by loss of sensation of the lower extremity. This action lasts for three quarters of an hour to about one hour.

One most important precaution to be taken in this technique is that the injection should never be made until you see a free flow of the C. S. fluid devoid of even a tinge of blood. The presence of blood with C. S. fluid will change the sp. gr. and the clinical picture. It may even *endanger* the life of patient.

(*Continued at foot of page 124*)

Observations on Vitamin—A Deficiency in a Tea Estate in Upper Assam*

● S. C. Dutta, L. M. P., A. M. O., Itakhooli T. E., P. O. Kheto, Assam

INTRODUCTION

Xerophthalmia has long been recognised as a manifestation of vitamin—A deficiency. In experimental animals it was found that the deficiency of vitamin—A caused changes in epithelial structure of eye, buccal mucosa, lining membranes of gastro-intestinal, urinary and respiratory tracts. The changes in the ocular conjunctiva result in xerosis which invites ulceration and blindness; changes in the buccal mucosa cause ulceration of mouth, in the gastro-intestinal tract dysenteric symptoms, in the urinary tract formation of stone in the bladder and in the respiratory passage increased susceptibility to lung infections. Due to these specific pathological changes in different epithelial structures and diminished resistance consequent upon these changes, susceptibility to various infections in the system is generally increased. Hence the anti-infective function of vitamin—A is also established (Green and Mellanby, 1928).

Apart from the xerotic changes in the ocular conjunctiva it was also found that the deficiency in its earlier stage causes night-blindness due to defective synthesis of visual purple by the retina. This fact has a diagnostic significance, and now-a-days the deficiency of vitamin—A is detected in its earliest stage by the dark-adaptation test. An important fact about vitamin—A deficiency is that it may occur in an individual and remain clinically undetectable for a long time without manifesting any signs. This sub-clinical type of the deficiency can be definitely established by the estimation of the vitamin and its precursor, carotene, stored in the liver and other organs only on post-mortem examination. Hence Nicholls (1937) concluded that absence of any particular sign does not necessarily exclude the deficiency.

In advanced cases, deficiency of vitamin—A was also found to retard normal growth in animals.

The next advance in the knowledge of vitamin—A deficiency was that it was found to be associated with some changes in the skin. It was suspected as early as 1904, but the exact nature of these changes was studied and its causation attributed to vitamin—A deficiency at a much later date.

Frazier and Hu (1931) reported some cases of cutaneous lesions associated with xerophthalmia and kerato-malacia. The frequency and uniformity of these skin lesions, their association with xerophthalmia and the improvement following after diet therapy led the observers to conclude that the lesions were due to vitamin—A deficiency. Loewenthal (1933) gave more conclusive proof that these skin lesions were due to vitamin—A deficiency. He observed in some of the prisoners in East Africa that many cases of cutaneous lesions were associated with xerophthalmia and night-blindness. Without modifying the diet of these prisoners they were put on 30 c.c. of Cod liver oil per day and both eye-conditions and skin eruptions cleared up.

Nicholls (1933) published a study of this skin condition as found in Ceylon, and later on dealt with the different aspects of the same in other communications.

The causation and nature of the typical skin lesions as observed by those workers are as follows. Due to keratinizing process in the sebaceous glands and their ducts, disturbance in the natural secretion (consequent upon the blocking of ducts) occurs with the formation of papular skin eruptions. These eruptions are sometimes preceded by a rough, dry, scaly condition of the skin. They are pigmented and conical in the early stage and hemispherical in the late stage. They affect mostly the extensor surfaces of arms and legs and are always accompanied with enlargement of sebaceous glands.

From the resemblance of these skin-eruptions to the skin of a toad, Nicholls (*Loc. Cit.*) for the first time gave it the name 'phrynoderma' (*phrgnos*=toad).

Cases of phrynoderma were reported from Madras also by Radhakrishna (1938) who in a subsequent clinical observation found that they were curable by Cod liver oil and vitamin—A concentrate.

MANIFESTATIONS OF VITAMIN—A DEFICIENCY AS FOUND IN THE POPULATION UNDER OBSERVATION

I propose to enumerate now my observations on the nature of vitamin—A deficiency in a coolie population of a tea estate in Upper Assam. I got in touch with many tea garden doctors who reported that they commonly come across such cases, but as the condition is not recognised by them, they do not give due importance to it. I personally believe that the deficiency is very common in tea estate labour class of Upper Assam and as the consequence of the deficiency is very serious in some cases ending in permanent damage to the eye, it deserves due attention of the medical practitioners.

The evidence of vitamin—A deficiency is common in children particularly belonging to new recruits who generally come from the most poverty-stricken areas of India. Adults are also affected. Both sexes are equally susceptible.

* A paper read at the 30th A. I. M. L. A. Session, Bombay, on 23-12-40.

E

and other parts of the body getting cleared up before the extremities. When the papules disappear they leave dark pigmented spots and the very look admits to a constant observer that these spots are remnants of previous papules. There are no subjective symptoms associated with phrynoderma. The most interesting fact regarding phrynoderma is that it does not necessarily run parallel with other signs of vitamin—A deficiency and in many cases disappears automatically. It is seldom that a case of advanced xerophthalmia or a worse eye condition is found associated with an advanced case of phrynoderma, the eruptions disappearing earlier, either completely or partially. This peculiar behaviour of the eruptions is apparent only to the constant observer and requires through investigation by the experts.

Sore-mouth due to vitamin—A deficiency has its own characteristic features and can be differentiated with precision from similar conditions due to other causes. The sore generally affects the tongue and the angles of the mouth. There are patches of erosion of the mucous membrane of the tongue which look red and glary. In advanced cases the whole tongue is red, glary and smooth. The ulceration of the angles of the mouth is of a chronic nature and result in white scar formation. It may extend to the lower lip causing permanent white discolouration of the inner aspect of the lip which simulates a patch of leucoderma. The patients generally come complaining of burning sensation of the mouth while taking hot food or drink. Some of these cases are found to be repeatedly suffering from hoarseness of voice. Sore mouth with angular ulceration was observed in about fifty per cent of the people belonging to 'Sowra' caste, who are recruited from the Ganjam District of Orissa. The adults and the children of this class were found equally affected. These people were found to be very debilitated and susceptible particularly to skin-affections.

FREQUENCY AND AGE-DISTRIBUTION OF THE THREE MANIFESTATIONS OF VITAMIN—A DEFICIENCY

In the absence of any statistical survey, it is difficult to make any definite statement on the frequency of the three conditions but the difference in incidence is so great that the general statement which may be given will be, I hope, fairly correct. The most commonly found condition is xerophthalmia. Phrynoderma and sore-mouth form only a small percentage of vitamin—A deficiency cases except that in a particular group of people mentioned above, cases of sore-mouth predominate.

As regards the age distribution of these three conditions, xerophthalmia is found in all ages but commonly in children from birth to sixteen years of age. Phrynoderma is rare in infants and in adults. The most favourable age-period is between four to sixteen years. Sore-mouth is found in all ages but is more common in adults.

The relation between these three conditions are very interesting. In a small percentage of cases all the three conditions co-exist giving a typical picture of the deficiency. In others, they are present in varying degrees or only one or two conditions manifest the deficiency. Phrynoderma is an early sign. It is found in many cases without any other sign of the deficiency and it disappears early as stated before. But it is not a constant sign. Many of the vitamin—A deficiency cases are free from any such eruptions in all the stages. An advanced case of phrynoderma is almost always associated with some eye change but the reverse is not found true. In adults eye changes and sore-mouth are combined in a few cases only. In them, either sore-mouth or xerophthalmia alone manifest the deficiency.

THE ASSOCIATION OF VITAMIN—A DEFICIENCY WITH OTHER DISEASES AND ITS EFFECT ON GENERAL HEALTH

It has been found that the subjects of vitamin—A deficiency are mostly children. These children are very easy victims, and markedly intolerant of diseases. Hence the brunt of all the diseases —epidemic or endemic—falls on these poor subjects with a consequently high death-rate in them. An important cause of the high children's death-rate in tea estates in Assam may be sought for in vitamin—A deficiency, which exerts its effect by preparing the soil for the seeds of disease. The management of this estate has introduced a system of feeding walking children twice daily and the routine items of diet are rice, dal and vegetable curry. This measure ensures intake of some vitamin—A besides other food-factors and it will be interesting to observe its effect on the frequency of the different manifestations of this deficiency amongst that group of children. The disease most frequently associated with vitamin—A deficiency is dysentery, particularly in chronic form. The coolie class will seldom come to hospital unless they find it urgently necessary. So they generally hide mild cases of dysentery in children which ultimately become chronic. These cases, when admitted to hospital, invariably show xerophthalmia. Hence when a case of xerophthalmia is found my first investigation is directed to ascertain whether the patient is suffering from dysentery. This relationship may be explained by the fact that the deficiency causes some specific change in the epithelial lining of the intestinal tract, thereby rendering it more susceptible to infection. Then again, it has been seen that children develop signs of acute vitamin—A deficiency after certain infectious diseases, e.g., measles, broncho-pneumonia, and dysentery, of which the last is the commonest. Hence a vicious circle may easily be established;

dysentery causing avitaminosis—A which again causes increased susceptibility to dysentery. Broncho-pneumonia is also commonly found in children suffering from this deficiency. Apart from this, these children are often found to be very susceptible to a catarrhal condition of the lungs with occasional low rises of temperature.

Otitis media is found in many small children suffering from xerophthalmia.

Skin diseases, e.g., scabies and impetigo, are often found associated with this deficiency, affecting all parts of the body particularly the scalp.

Stunted growth and debility are not found in the early stage of vitamin—A deficiency. These are found as sequalae only in advanced cases. A case of advanced xerophthalmia or keratomalacia is often found to be associated with marked debility but a case of phrynoderma or early xerophthalmia does not necessarily show marked debility.

The last but not the least important disability to be considered in relation to vitamin—A deficiency is blindness. Many cases of blindness both absolute and partial are found in this part of India. The congenital cases described above, of the nature of the unilateral microphthalmos, cannot be traced to any congenital specific cause, e.g., syphillis, gonorrhoea or any other hereditary disease. Ophthalmia neonatorum is very rarely found in these people. Diseases which may cause blindness, e.g., small-pox, epidemic dropsy, diabetes, and other eye affections which may end in blindness, e.g., trachoma, glucoma, myopia, cataract and epidemic conjunctivitis are rare here and the eye fly is almost unknown. These negative observations together with the fact that some xerophthalmia cases end in blindness point clearly to a suggestion that the blindness found here may owe its origin to vitamin —A deficiency. This opinion is corroborated by the findings of other observers also. The hill-tribe people are in the habit of intentionally depriving their children of cow's milk and the highest proportion of blindness in Assam is found in hill-tribes. Hence the blindness found in Hill Districts is attributed to vitamin—A deficiency (Guha, 1939). It has been stated that probably in about two-thirds of the blind children in Ceylon, the cause is vitamin —A deficiency (Nicholls, 1934).

PREVALENCE OF OTHER VITAMIN DEFICIENCIES

Pellagra, beri-beri, rickets, osteomalacia and defective reproductive power of females are rare in the coolie population. Anaemia is commonly found and this is to some extent attributed to vitamin—B and/or vitamin—C deficiency.

DESCRIPTION OF THE SUBJECTS AND THEIR DIETARY

The population under observation may be divided into two main classes, new recruits (generally on a three years agreement) and old coolies who have for a long period settled in the estate. There is a good deal of difference between the two sections as regards habits, standard of living and dietary. The new recruits generally come with a view to accumulate money in order to improve their condition at home when repatriated. They do not keep cows or grow vegetables. They live mainly on stock rice, dal, dried fish and take quantities of condiments. They seldom take meat, fresh fish, egg, milk or any oily substance except a little mustard oil. The small quantity of vegetables they take again varies from season to season. The vitamin-rich vegetables, e.g., cabbages, cauliflowers and spinach, they rarely consume because of the comparatively high cost. Those that are consumed in small quantity consist mainly of pumpkins, gourds, brinjal, cucumbar, radish and tomato. The settled people have a better idea and better way of living. Many of the families have a plot of land leased from the garden-authority on a nominal rent and they can manage to live on fresh unpolished home-husked rice at least for some part of the year. They are found often to grow vegetables on a small plot of land in front of their quarters and they are more or less in the habit of consuming some variety of vegetable. Some of them keep cows and get a little milk for consumption by their children. Consequently the old coolies get better nourishment than the new coolies. Both the sections are in the habit of taking a good deal of home-brewed rice-beer (*Haria*) prepared from unpolished rice which is likely to contain a fair amount of vitamin-B. They consume a good quantity of infusion of tea which contains vitamin—E.

From the study of diet and drink of these people it is evident that they get vitamins—B, C, and E, in moderation but little of vitamins—A and D. In tropical regions, people get abundant vitamin—D, produced by the active rays of sun on the skin. So the coolie population, particularly the new recruits, suffers mostly from the deficiency of vitamin—A.

SUMMARY

1. The nature, frequency and course of eye-changes, skin-changes and sore-mouth observed in vitamin—A deficiency cases in a coolie population of a tea estate in Upper Assam have been described.

2. Some observations regarding phrynoderma are recorded.

3. The effect of vitamin—A deficiency on general health and its relation with other diseases particularly with dysentery have been discussed. The cause of blindness found in this part has been suggested to be a sequel of vitamin—A deficiency.

4. A description of the subjects under observation is given with a rough description of their dietary which shows that regarding vitamins they mostly suffer from the deficiency of vitamin—A.

(*Continued at foot of next page*)

Uses of Magnesium Sulphate

DR. J. DHAIRYAM, M.B., B.S.,
R.M.O.,
Mental Hospital, Madras.

The writer has found this simple drug to be of immense benefit in various diseases.

EXTERNAL USES

As hot compresses it is used in :

i. Subcutaneous inflammations including filarial affections.
ii. Spreading and sloughing inflammations.
iii. Open ulcers as daily dressings
iv. Irritation and congestion in the eye as eye-washes.

INTERNAL USES

It is well known as a time-honoured purgative. It is also commonly used in conjunction with other drugs prescribed for fever, diseases of heart, diseases of kidney, auto-intoxication, etc.

ILLUSTRATIVE CASES

(1) **Eclampsia :** A full-term pregnant woman was admitted in an unconscious condition with a history of recurring fits. Her urine showed albumin and casts. She was given 30 grains magnesium sulphate intravenously. In about an hour she regained consciousness, and without any further fits delivered normally a full-term child. *No other treatment was given.*

(2) **Acute Nephritis :** A young woman had an acute attack of Bright's disease with fever of about 3 days' duration. She was given mag. sulph injections, and within a week she made a quick recovery, and was discharged cured. *I believe that mag sulph injections shortened the course of the disease.*

(3) **Tetanus :** Experience after having treated a number of tetanus cases led me to adopt the following line of treatment. Anti-tetanus serum intravenously and intra-muscularly, supported by sedatives like bromide, chloral or avertin and supplemented by mag. sulph injections intravenously (25 to 30 grs). *The result is far better with mag. sulph than without it, and after reverting to this line of treatment I have given no intra[illegible] [illegible] administration of serum.*

(4) **Cirrhosis of Liver with Ascites** : In treating such cases, I used mag sulph injections intravenously with diuretics containing Tr. Apocyni. Whenever tapping was done 10 cc. of mag sulph solution was injected subcutaneously. *I have found gradual improvement setting in with this method of treatment.*

(5) **Asthma :** Cases not due to cardiac causes were given weekly injections of mag. sulph intravenously alternating with intramuscular injections of i. Scamin 1 gr. ii. calcium gluconate 3-5 grs. iii. atropine Sulph 1/100 gr. iv. adrenalin ½ cc. The first three were boiled and cooled, and adrenalin was added just before injecting. This treatment was continued for six weeks. *Some cases were completely cured, and others had [illegible] relief. The results obtained by either method separately had [illegible] than the combined therapy.*

Mag. sulph injections and auto-hemotherapy were helpful in another series of cases.

(6) **Catarrhal jaundice :** These cases were treated with mag. sulph injections along with calcium and parathyroid by mouth. Sometimes insulin is useful in cutting short the duration of the disease, as this helps us to keep the patient on a diet of sufficient caloric value during the ordinarily prolonged course of the disease. *I found this line of treatment gave [illegible] and earlier results than other lines of treatment.*

(7) **Urticaria (**Ordinary and the persistent type) Mag. sulph. intravenously, and calcium and parathyroid by mouth were effective in these cases. A few were given adrenalin injections coupled with atropine.

(8) **Uremia :** Asthmatic and gastro-intestinal types were given mag. sulph. injections, 10-15 grs. intravenously in addition to the classical line of treatment. The blood urea came down in 24 hrs. In some cases, the main line of treatment was by mag. sulph injections only.

(9) **Blood Pressure :** Though there is an initial and temporary rise of B.P. immediately and after the first few injections, yet I have found intravenous mag. sulph. has a tendency to reduce B.P. in the long run.

(10) **Mental Diseases** : Intravenous medication with mag. sulph. has been used successfully in several varieties of mental disorders, and it is not my intention in this short note to deal with them in detail. For the present, I may state that it is helpful in mania, cerebral syphilis, and certain varieties of toxic psychoses. In conjunction with other drugs and therapy it certainly helps the cure which is not possible to achieve without it.

DOSAGE

Externally, a saturated solution of mag. sulph. is used as compress.

Internally, as a laxative it is given in 1—2 dr. d[illegible] as a hydragogue cathartic it is given in 4 to [illegible] dr. dose in a concentrated solution.

Parenterally, it is advisable to use chemically pure mag. sulph., as impurities vitiate the result. Before injection, it should be dissolved, filtered, boiled and cooled. Freshly prepared solution only should be used. *Dose* : for fits, tetanus, and mental excitements 30 grs. in 5 or 10 cc of distilled water, for jaundice, Bright's disease etc., 15 to 20 grs. will d[illegible]. If there is no reaction the dose can be increased. If there is reaction, as fever, vomiting etc., the dosage should be reduced. The best result is obtained where the dose is just below the reaction line, particularly in excitement cases. The usual interval between injections is five days.

(Continued from previous page)

ACKNOWLEDGMENT

I am indebted to my Chief, Dr. K. P. Hare, for his valuable advice and help in writing this paper.

My thanks are also due to Mr. F. O'Connor, the Manager of the garden, for his kind permission and encouragement to publish it.

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A Case of Quinine Susceptibility

DR. P. C. SEN, CHAIBASA

A patient aged 10 years suffering from [illegible] fever was being treated by a *Kabiraj*, as he could [illegible]. But finding no result, he came to me [illegible] injection of a cinchona derivative [illegible] 10 [illegible]. After half an hour, I was called to see him with the following symptoms :

Prostration body cold and clammy, eyes [illegible] congested, severe itching all over the body, restless, vomiting, [illegible] purging, intense burning in the stomach, pulse imperceptible, heart-beats feeble, audible and quick.

Adrenalin and cardiazol did not relieve the symptoms. Some time after, the patient had an attack of fever (10[illegible] F), preceded by severe shivering. Next morning he was alright only prostration remained.

THE
Indian Medical Journal

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

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Dr. Cursetji Apologises

The *Obiter Dicta* laid down by Dr. Jehangir J. Cursetji of Bombay in the *Insurance World*[1] regarding the qualification and status of medical licentiates in general, and as medical examiners of Insurance Companies in particular, were severely indicted by us[2] as being unethical in substance and unprofessional in conduct. We then pointed out.

"If medical registration has got any legal or ethical meaning it is this: no registered medical practitioner can be put one against the other in terms of superior knowledge or skill."

And remarked that it was surprising that from Bombay only we hear such opinions which would never be tolerated by the profession in other provinces'.

We are now glad to learn from the proceedings of the Bombay Medical Council dated 10-2-41, published in the April issue of the *Journal* that it has vindicated its position as the statutory guardian of its Registered Medical Practitioners by finding Dr. Cursetji 'guilty of infamous conduct' and accepting the apology tendered by him. In his letter to the Registrar of the Bombay Medical Council dated 15th January 1941 he wrote:

"I am in receipt of your letter No. 1126/1462 of 12-12-40 asking me to furnish any further communication which I may have to offer in connection with the complaint made by Dr. U. B. Narayanrao regarding the publication by me of a letter in the *Insurance World* of February 1939.

I have already submitted my statement of defence in which I have explained the circumstances under which the said letter was published. I repeat that my sole object in doing so was solely for the purpose of obtaining a uniform standard of education for all classes of the medical profession and that I did not intend to cast any reflections on or injure the feelings of any member of the licentiate group.

It appears however that my intention in publishing the said letter has been misconstrued and has given offence to a section of the profession. If I have inadvertently done so, without entering into the pros and cons of the controversy and apart from its legal merits, I am sorry.

I trust the above explanation will be accepted by the Council in the spirit in which it is offered."

The Council has accepted this explanation and regret, and we are glad to note that it has not taken the more extreme measure of erasing his name from the Bombay Medical Register, as after all and as we remarked[3], "He is a prisoner of his own ignorance.....he refuses to be liberated from this prison.....It is an old man's view of the present-day medical politics....."

In the post-script to his infamous article in the *Insurance World* he wrote, obviously as a result of belated sense of responsibility:

I am aware that I am raising a hornet's nest by publising this letter. But I do not wish to waste any time in replying to any correspondence on this subject here or elsewhere for I know it will result nothing tangible.

But the enquiry and decision of the Bombay Medical Council show that Dr. Cursetji's own hornets had given him something 'tangible' to ruminate on the unwisdom of rearing them in the vine-yard of public press of this country.

In the course of his apology under reference he writes that the sole object of his article was for the purpose of obtaining a uniform standard of education for all classes of medical practitioners. We are however constrained to remark that if this had been "the sole object" he need not have sought the columns of a non-medical journal like the *Insurance World*. On the other hand, our Association itself would have given him an hospitable platform from which the licentiates themselves, for the last 36 years, had been pleading for the establishment of a uniform minimum standard of medical education. To this extent, we believe his apology is halting and half-hearted.

1 Feb. 1939, pp. 265—267.
2 Editorial, May 1939, p. 171, *I.M.J.*
3 *Ibid.*

The Determination of Age*

● Mr. Yasin Yunus, Barrister-at-Law

ITS SCOPE

The determination of age plays an important part in many a trial, civil and criminal, both for the purposes of deciding liability and responsibility and also identity, either of the living or of the dead. That medical opinion can be of considerable assistance in the determination of age no one would deny. But, probably, there is no other item falling within the purview of medical practitioners with respect to which judges (except in cases of particular difficulty) easily arrive at a finding without much ado about the medical expert's opinion. In this regard the lawyer alone does not trespass into the domain of doctors. Laymen and lawyers seldom realise that the task is not as easy as they imagine. "There are no accurately placed milestones on the road of life." Numerous decisions can be found in the Law Reports discussing the extent, nature and importance of medical evidence to aid us in the determination of age. The consensus of judicial opinion appears to be that medical evidence as to age, from its very nature, is based upon assumptions and cannot determine with precision the exact age of a person. This is admitted by all medical experts. What the medical man can do is to give an approximately correct idea. But he is more often called upon to pronounce his opinion on border line cases. Lyon, in his *Medical Jurisprudence*, has rightly observed that such cases present "as great difficulties in correct solution as any within the range of medicine." He tenders the advice that a medical witness should not only exercise the greatest caution in expressing his opinion but should be prepared to admit that his estimate may be wrong.

NON-MEDICAL EVIDENCE

The absence of reliable documentary evidence with regard to age in India is well known. There is no doubt an Act known as The Births, Deaths and Marriage Registration Act (VI of 1886) but as it provides for voluntary registration, a very small percentage of people take the trouble of registering births. Indeed, if statistics were to be taken, I have no doubt that more cases of recorded voluntary causing of hurt will be found than of voluntary registration of birth. This Act has not even the virtue of being all comprehensive. By Section II Cl (a) it provides that the persons whose births shall be registerable under the Act are those to whom the Indian Succession Act applies, and all persons professing the Christian religion. There are, it is true, also local enactments which provide for the registration of births and deaths but they are not availed of by the public in general. Thus the Register of Births and Deaths maintained at a Police Station may tell you that a child was born, but by the time the Dai informs the Chaukidar and the Chaukidar tells Daffadar, who, in his turn, tells the A.S.I. at the Thana, any time between a week to a month may have elapsed.

Another type of document which is frequently produced in India in proof of age is the Horoscope or Tipan. If the genuine horoscope be produced it is of great accuracy but it is of little authenticity as its custody is unsafe and it is often made to order after the litigation has commenced.

In a case which I had recently to defend, the age of the defendant at the time of an arbitration was of some importance. Cross-examination of a witness had established the defendant to have been a minor at the time of the arbitration. Suddenly, through one of the witness who had come to prove the arbitration, was produced a ready-made horoscope to show that the age of the defendant was, at the time of the arbitration, 19 years. The look of the paper and the ink was as old as one would expect, and of course the desired entries were there. Here was a case where medical evidence was of a decisive value as the margin of dispute was a period of five years.

It is only in the case of a very small percentage of people that, besides the Birth Registers, documentary evidence in proof of age, such as Matriculation Certificates or entries in the School Registers are available, but their basis also is not always above question. Hence the necessity of medical evidence to aid Courts of Justice in the determination of age is greater in India than in any other civilised country.

(Continued from page 117)

Contra-Indications: As all spinal anaesthetics cause to some extent fall of blood pressure, low blood pressure is the most important contra-indication of its administration. The condition of pyemia also contra-indicates its administration by the spinal route.

In nervous patients the lumbar puncture is very troublesome and dangerous, sometimes impossible.

Patients with chronic ester-arthritis of the spine or other bony deformity are very bad subjects for lumbar puncture.

Difficulties and Dangers of spinal Anaesthesia: (1) Immediately after the spinal anaesthetic is introduced the initial fall of blood pressure may be very marked—associated with faintness, sweating, restlessness and pallor.

(2) Respiratory embarrassment—air hunger and cyanosis may occur though not so common, when the anaesthetic fluid reaches a higher level either from faulty position of the patient or from overdose.

(3) The other difficulties are meningitis, retention of urine and Rectal incontinence.

(4) Headache is common after spinal Anaesthesia.

(5) Anaesthesia of the lower extremity may persist for sometime.

(6) Vomiting though not serious may occur in some cases.

* Reproduced from the Medico-legal Supplement of *Patna J. Med.*, Oct. 40, with due acknowledgments. (Ed.)

SUPPLEMENT

THE INDIAN MEDICAL JOURNAL

MADRAS MAY 15, 1941 Vol. 3, No. 5

CONTENTS

Planning of Medical Relief for Our People

A. Viswanathan

(2)

History of British National Health Insurance

The National Health Insurance Act of Great Britain is undoubtedly an important piece of medical legislation. But it must not be supposed that this is the only method by which medical relief is made available to the British people. Nine-hundred county hospitals, one-thousand-eight-hundred voluntary hospitals, innumerable private hospitals, and nearly thirty-thousand private practitioners effectively serve the major part of the population. It is therefore often said with justifiable pride that no Britisher dies in his Island merely because of the want of medical aid.

The National Health Insurance for the industrial population of Britain was introduced to fill the lacunæ in the service of a population who could not by themselves pay for adequate medical aid but on whom depend the opulent dividends of her capitalistic industry.

It must be clearly understood that in Great Britain as in other countries Compulsory Health Insurance does not cover the indigent but only the wage-earners.

The first Health Insurance Act in Europe was enacted in Germany in 1900, and this was copied, adapted and introduced in Britain in 1911 by the then Prime Minister, Lloyd George.

There are two factors in connection with the British Act which deserve the readers' attention. The first factor is that this Act was introduced mostly out of political reasons. The second factor is that it was opposed, at that time, by the British Medical Association.

Lloyd George was apprehensive of the Labour Party coming into power by labour votes. That party was then under the popular leadership of Thomas and Ramsay MacDonald. The Prime Minister wanted to break the back of this party. He therefore conceived the idea of mobilising the labour votes, at least dividing them, by the promise of benefits under the scheme of compulsory Health Insurance which would secure for the workers sickness benefits, maternity benefits, and disablement benefits. Thus he introduced the compulsory Health Insurance Bill, rushed it through both the Houses of Parliament; and in this manner effectively crushed, for the time being, the rise of Labour Party into power. But as the Act was good in principle and likely to be of benefit in practice, it gained practically the unanimous consent of all the parties.

The British Medical Association was perhaps the only opponent of this Act at the time of this legislation. The reasons for its opposition were: low medical fee, namely, 6 sh per head per annum; limitation of the panel practice; and the restricted choice of a doctor for the panel patient. It therefore took a pledge from its constituent members that they would not work under this new dispensation till the Ministry of Health settled the matter favourably with it. This 'strike' went on for nearly two years. But it was soon broken by the familiar device of 'Black legs'. When the British Medical Association saw and realised that its own members, one by one, were breaking the pledge it released them from the pledge and allowed them to go their own way. Its opposition was soon replaced by dissatisfaction with some of the provisions of the Act, and later reconciled itself to the inevitable. But its agitation was not without effect. The medical fee was raised from 6 sh to 9 sh, and the British Medical Association got representations in the regional and central insurance committees.

In pursuance of a desire expressed by the All-India Medical Licentiates' Association to place before you the conditions of service in the emergency branch of I.M.D., and on behalf of this great organisation which represents the medical licentiates of India, we beg to place the following points for your and the Government's sympathetic consideration. We feel very happy to have you to-day at the helm of affairs in the medical department and we have every reason to believe from what we know of you that you will be pleased to extend to our brethren who are already serving the Government in the I.M.D. and to the future recruits their just rights and thus encourage us more to bring home to the vast number of medical licentiates in India to join the Emergency Medical Service in large numbers, as we have been doing before.

It is needless to mention that our Association has never hesitated to help the Government in emergencies in the past and will not fail to do so in the present situation, but we expect at the same time that the conditions of service will be improved in such a way as to give our brethren such status and pay as would be commensurate with their education and position in life.

In India the recruitment of medical men is mostly being made from

i. Medical Graduates.
ii. Medical Licentiates.

Medical graduates are being taken as commissioned officers in the Emergency Branch of the I.M.S. while medical licentiates are taken only as Sub-Assistant Surgeon in the Emergency Branch of the I.M.D.

Since the last Great War there has been a vast improvement in the educational standard of medical licentiates and it is needless to mention that the difference now existing between the two is more in form than in substance in many cases.

The setback to the progress of medical licentiates has arisen out of the Indian Medical Council not recognising their qualification though it is admitted by the Government that so far as their professional attainments are concerned they are mostly equal to M.B., B.S., as physicians and surgeons. In support of this claim we are glad to submit that for the last 10 years the Pathological Departments of the Provincial Laboratories (Delhi) and of Irwin Hospitals are under the charge of Sub-Assistant Surgeons; similarly in the last annual report of Hospitals and Dispensaries of the Punjab Province the list of surgeons declared by the Department shows that out of 13, nine are medical licentiates and 4 medical graduates. In other provinces also whenever opportunities have been given to our brethren they have acquitted themselves creditably and have received universal praise.

MEDICAL GRADUATES

In civil life a large number of M.B., B.S., joined rural medical service on an average pay of Rs. 65 P.M. along with medical licentiates; similarly in private practice most of them might not be making more than this per mensem; but in the Emergency Medical Service they get:

i. Rs. 450 plus Rs. 50 over-sea allowance, i.e., 9 times of what they are getting on civil side.

ii. Most of them get two lifts in rank, i.e., from Assistant Surgeon they become I.M.S.

iii. They get King's Commission, the highest honour in Medical Department.

MEDICAL LICENTIATES

In Emergency Service the licentiates get, in contrast to the above:

i. Rs. 75 plus Rs. 50, i.e., Rs. 125, only twice of what they get on civil side.

ii. No lift in rank. They remain as Sub-Assistant Surgeons.

iii. They get Jamadar's rank in military, which does not allow them better social status than what they are enjoying on civil side.

The terms enjoyed by even a fresh raw and inexperienced medical graduate are being denied to a medical licentiate having put in several years of service and even if he is in possession of D.T.M., M.S.M.F., or L.T.M. or a provincial repute as a physician or a surgeon, his claim for better terms are not taken into due consideration.

During the last Great War a Sub Assistant Surgeon used to draw:

i. Civil pay plus military pay equal to that of civil pay.

ii. Rs. 50, 75, 100 per mensem as allowance for 4th, 3rd, 2nd, 1st and Senior Grade respectively.

We, therefore, suggest that medical licentiates in military medical emergency service should draw at least what they had been drawing during the last war and should be designated as Military Assistant Surgeons (as emergency arrangement) instead of Military Sub-Assistant Surgeons so that they may be satisfied and get the lift in the higher grade, like graduates.

The selected Sub-Assistant Surgeons having:

i. Higher foreign or Indian qualification,

ii. Provincial reputation as Physicians or Surgeons should be given King's Commission at the start.

In peace time the strength of senior S.A.S., i.e., Subedar, is 10% out of which only 1% hold honorary King's Commission.

Improvement in this arrangement would appear to be an almost imperative and an immediate necessity. Our Association feels that all officers in the Emergency Branch of I.M.D., who have put in 5 years' service or practice before joining the I.M.D., should be given the Subedarship to start with and to confer on these medical men better status in the Army as an emergent measure.

The percentage of promotion to hold King's Commission should be applied to the total strength of the S.A.S., now serving in the Army. This concession has already been granted in other branches of the army. It is an admitted fact that during war the members of military medical service have to work under greater stress; some increase in the percentage indicated above, based on peace requirments, should be given. We think that amongst those of our brethren who have put in meritorious service prior to joining the military duty or have done meritorious work in the army should receive King's Commission, and we would suggest that at least 10% of the strength of medical licentiates serving the Military Department be allowed to enjoy this privilege. What we want is that there should not be any bar to our men getting the much-coveted King's Commission like in other branches of the Army.

Along with the above we think that the

(1) Allowance fixed for the dependents of medical licentiates, if killed or disabled in action, should be revised as the present rates are most unsatisfactory.

(2) Daily allowance while on duty on transit should be revised.

(3) Rations which they are allowed should be revised in the light of their social status.

(4) Over-Sea allowance be granted to them also.

If these suggestions are accepted by the Government, we are confident that the medical licentiates in India will respond to the appeal of the Government and they will be able to get the services of this useful and contented band of medical men in the present hour of emergency.

In making these suggestions we have been actuated by the highest motives of patriotism and service, not only to the Government but our members who look upon our organisation for guidance and assistance.

We hope that the Government will be able to realise our view points and generous enough to grant our requests which, we claim, are just and reasonable.

This will strengthen our hands in bringing to the notice of our members the improvements brought about in the service conditions which, we are sure, will attract more men.

Lastly, we must thank you sincerely for the patient hearing you have given us.

Copy of letter No. 2000/41-R, dated New Delhi, 17th March, 1941, from the Director-General, I.M.S., to the General Secretary A.I.M.L.A., Karad (Dn.).

With reference to the deputation of the A.I.M.L.A. which waited on the D.G.I.M.S. on the 14th March, 1941, I am directed to forward herewith six copies of the Terms and Conditions of recruitment to the Emergency Branch of the I.M.D. (S.A.S.) together with a note on expatriation allowances.

The various points raised in the petition dated the 14th March, 1941 submitted by the Deputation are receiving attention.

The following rates are admissible to Sub-Assistant Surgeons of the I.M.D. serving with Forces Overseas (in addition to regular pay, specialists' pay, etc., to which they are entitled):—

Expatriation allowance at the following rates:

Subedar Major or Subedar	Rs. 20 p.m.
Jemadar, after 5 year's service in the rank	Rs. 15 p.m.
Other Jemadars.	Rs. 10 p.m.
Sub-Assistant Surgeons employed at Aden	Rs. 33⅓% of their pay.

Field Service Batta

Subedar Major or Subedar	Rs. 16 p.m.
Jemadar	Rs. 9 p.m.

All-India Medical Licentiates' Association

C. P. and Berar Provincial Branch

Memorandum on the need for converting Robertson Medical School into an University College, and for improving the terms and conditions of appointment of licentiates in the Emergency Medical Service.

[We have often remarked in the *Journal* that the dual system of medical education stands self-condemned and is certainly highly prejudicial to the interest of the profession as well as the public. The C. P. Government should see that the Robertson Medical School at Nagpur is integrated into a college and affiliated to the Nagpur University. We believe that they are in the know of authoritative opinion on this subject and hope that they would follow the example of Madras and U. P. in this respect.

As for the position of the licentiates in Emergency Medical Service, we trust that Inspector-General would recommend to the Government such improvements as would do away with glaring differences between medical graduates and licentiates in military service.—Ed.]

Drs. Sengupta, Kulkarni and other representative members of the above Branch waited in deputation on Lt.-Col. Hance, I.G.C.H. and presented the following memorandum on 25th Feb., 1941.

On behalf of the C.P. and Berar Branch of the A.I.M.L.A. we accord you a hearty welcome on your becoming the Head of the Medical Department of these Provinces. We sincerely thank you for the opportunity given to us to lay before you some of the objects of this Association.

Sir, you come from Bangalore where in 1921 the All-India Medical Licentiates' Annual Conference was held. Even before 1921 the connection of this Association with Bangalore existed. The foundation General Secretary of this Association, the Late Dr. P. S. Ramchandriar of Mysore Service, lived and worked in the same city, and it was he who along with five other members of this class founded this Association and was responsible for its growth and uplift. Coming from the same place, we have every expectation that you too will look after this Association and foster its development and growth to a bigger and higher position. It was founded in 1906 with its registered office at Bombay, and the C.P. Branch was opened in December of the same year.

Abolition of Dual Standard of Medical Education

The most pressing need of the present time is the efficient medical education for the benefit of the vast population of our country. For long, it has been a sore point with a large section of the medical profession that there exists a dual standard of medical education in this country which turns out two classes of doctors—Medical Graduates and Medical Licentiates. The Licentiates resent this distinction not only because of the iniquitous discrimination to which they are subjected both by the Government and the people but also for the sake of the poor millions of sufferers. We therefore demand the abolition of this dual system and the introduction of an uniform one in its place. The Indian Medical Council has recently advised Provincial Governments through the Government of India, that the present medical school education be done away with by 1947 at the latest, and that the minimum standard laid down by the Council should form the basis of obtaining the minimum registrable qualification in India, with a proviso that as a transitory measure all existing licentiates be recognised by the Council. The licentiates have so far had the satisfaction of seeing their demand met in two provinces, viz., Madras and U. P. where medical schools have been abolished. Two more provinces are likely to follow the example soon.

In the opinion of the Association, the Robertson Medical School could be converted into a college with the least difficulty. Probable objection to the proposed measure would be that the poor villagers of the Province will be deprived of the cheap medical aid that is now said to be rendered by the licentiates. But the objection is quite untenable as nowadays graduates are available in large numbers on Rs. 60 a month, or even less. We appeal to you sir, to take the initiative to convert the Robertson Medical School into a College and give effect to the recommendations of the Indian Medical Council.

The greatest disadvantage of a 4 years' course is that it marks the licentiate as an inefficient doctor, and this is seriously objectionable not only from personal but also from the public point of view. It is out of date to keep this dual system of education in a country where every medical student is keen on getting the best modern education possible.

Recruitment of the Licentiates to the Emergency Branch of the Indian Medical Department.

Till July 1940, lots of correspondences passed between the Mother Association and the D.G.I.M.S. on the subject. The Standing Committee of the Association met in Bombay on the 15th and 16th July 1940 and submitted that a Military Assistant Surgeon Branch to the Indian Section of the Indian Army should be created and Licentiates volunteering for military service should be recruited in that cadre on a pay Rs. 250-15-450 leading ultimately to the conferment of Kings' Commission. We do not know as yet what action the Government proposes to take on our suggestions. In the meantime, attempts to induce licentiates to join the military service are not very encouraging as the status, pay and allowances are not attractive enough. We appeal to you, Sir, to try your best to improve the situation. The Association thinks that recruitment will increase rapidly as soon as status, pay and allowances are made attractive, and we are sure that the licentiates will not lag behind and shall do their bit for the Country and the King.

We are grateful to you, Sir, for having afforded us the opportunity to place before you these few suggestions and we hope that they will meet with your favourable consideration. We request you also to be a patron of this Provincial Branch of the All-India Medical Licentiates' Association.

We thank you once again and wish you a very happy and enjoyable time in our Provinces.

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Indian Medical Council

The provision of an all-India Medical Register was among the proposals referred to by Dr. B. C. Roy in his presidential address at the meeting of the Medical Council of India held on March 21st 1941. He said this was one of the three proposals of the Council forwarded to the Government of India, from whom, however, no intimation had been received as to their views.

The first of the three proposals was the Council's resolution to discontinue the system of indirect reciprocity, that is to say, reciprocal recognition of medical degrees of other countries through the General Medical Council; and as a consequence the Council recommended withdrawal of the recognition of the qualifications granted by the New South Wales Medical Board after March 31, 1941.

Secondly, the Council recommended to the Government to set up a Reciprocity Board for the purpose of facilitating reciprocity between India and various countries comprising the British Commonwealth of nations as also for the purpose of removing, by mutual discussion, any difficulties in the way of establishing reciprocity with these countries and maintaining the same once it was established.

Thirdly, the Council agreed to recommend to the Government to alter the Act in order to provide an All-India Medical Register on which the names of all persons who held qualifications, borne on Schedule one to the Act, and of those who were on the provincial medical registers up to a certain date would be included; and in order to ensure a uniform standard of medical education registrable by the Indian Medical Council, the Council also recommended that the Central Government should ask the Provincial Governments either to abolish medical schools for licentiates or raise them to the University standard.

Dr. Roy referred to the position of Italy and quoted the observation of the President of the General Medical Council that for the greater part of the long period during which reciprocity with Italy existed in a sense, she was making a privilege far more extensive than any that she gave. So far as India was concerned, said Dr. Roy, she was a party to an agreement between the Government of England and the Italian Government, by which India was to give facilities of practice to Italian doctors, but India did not benefit in the least. A proposal was put before the Italian Government by the British Government three years ago for the purpose of effecting a new agreement according to which India would be left free to deal with the Italian degrees as she liked, but no decision was arrived at. Meanwhile the proposal of the General Medical Council was accepted by His Majesty's Government and in virtue of the Medical Act, such revocation would be without prejudice to the rights of any persons whose names had been already entered on the Medical Register, on the date on which this revocation took place. The Medical Council of India were therefore free to deal with Italy directly if and when occasion arose.

With regard to Japan, Dr. Roy said that in pursuance of Japan's desire for mutual recognition of medical qualifications as between the two countries, the Japanese Government had awarded a list of qualifications which they desired to be recognised by the Indian Medical Council. The Executive Committee of the Council had recommended the recognition of the first of the two groups of degrees, mentioned by the Japanese Government, namely, those of graduates who had obtained instruction at a University and had obtained the degree of bachelor or had graduated from the medical course of a Government or public medical school or a medical school designated by the Minister of Education. In pursuance of the Council's resolution relating to the recognition by the provincial medical councils of the medical degrees which were not recognised by the Medical Council of India, Dr. Roy said that the Central Government had taken necessary steps to communicate with the Provincial Governments and bring about suitable legislation.

Dr. Roy said that the Burma Government had intimated their decision not to enter into any scheme of reciprocity with India except through the General Medical Council. The Executive Committee had taken up the matter in order to find out India's constitutional position with regard to this decision.

Dr. Roy also dealt with a number of technical problems and the position with regard to the recognition of the degrees of the Andhra and Patna Universities.

The Council accepted the recommendation of the Executive Committee regarding Italy and as regards Japan the Council referred back to the Executive Committee the Japanese Government's proposal for consideration from all aspects.

The Council accepted the resolutions of the Executive Committee regarding the retrospective recognition of the Andhra and Patna M. B. B. S. Degrees from 1925 and 1926 respectively.

Dr. B. N. Vyas and Dr. K. S. Ray were re-elected members of the Executive Committee.

The next meeting of the Council will be held on Tuesday, December 28, 1941 at New Delhi.

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ASSOCIATION NOTES

Nowgong (Assam): Meeting held on 23-2-41. 6 members were present. Dr. A. Matlib occupied the chair.

The following resolutions were passed.

Regarding the resignation letter of Dr. L. K. Barooah, the house expressed regret to accept his resignation and requested him to withdraw his resignation in the best interest of the Assn.

Read the appeal of Dr. J. C. Bhuyan in his letter dated 14-2-41. Resolved that the Assn. fully supports his appeal and wishes to help him in his cause.

Circular letters Nos. 3 & 4 from Prov. Secretary were read and the Branch Secretary was authorised to send appeals.

Contingent bill amounting to Rs. 7-4-9 was passed.

Amraoti (C. P.): Meeting held on 14-2-40 Following resolutions were adopted:

Resolved that the following office-bearers of the above District Branch and the Berar and C. P. Provincial Branch be elected as follows:—*District Branch*: Drs. S. B. Kulkarni—President, C. M. Jamadar—Vice-President, B. J. Bansod—Secretary, K. S. Pacde and Diwanji—Members of the Executive Committee.

Berar and C. P. Provincial Branch: Drs. K. P. Sengupta—President, G. K. Kulkarni—Secretary, B. J. Bansod and S. B. Kulkarni—Members of the Provincial Committee.

Read and discussed the draft resolutions sent by the General Secretary and resolved that Dr. B. J. Bansod, the delegate to the Bombay Conference, is authorised to express his opinion in consonance with that of the general majority in the open session of house.

Nagpur (C. P.): General meeting held on 27th Nov. 1940 under the presidentship of Dr. S. D. Deshmukh. 12 members were present.

Election of office-bearers for 1940-41: Drs. S. D. Deshmukh—*President*, Upasani—Secretary and Treasurer. *Managing Committee*: Drs. Alom, G. K. Kulkarni, R. S. Sastri.

Members of the Standing Committee: Drs. Thergaonkar, Dongre. *Representative* for the Bombay Annual Conference: Drs. K. P. Sen Gupta, G. K. Kulkarni.

Bombay: Managing Committee meeting held on 27-1-41 with Dr. T. B. Narayan Rao in the chair.

Minutes of the last meeting held on 8-12-40 were read and confirmed.

Account showing the expenses of Rs. 17-15-3 for Dec. 1940 was scrutinised and passed. The meeting also scrutinised and passed the Branch Fund account showing the balance of Rs. 8-7-6 against Rs. 11-9-6 due to Dr. T. Shesha Rao which the Branch has to pay him for the expenses that he had incurred for the Branch.

The house accepted the resignation of Dr. M. V. S. Kothare of his secretaryship and has authorised Dr. V. K. Prabhudesai, Jt. Hon. Secretary and Treasurer to work in his place.

The committee also considered the report of the Reception Committee of the Annual Conference held at Bombay, presenting the accounts showing a total expenditure for the annual conference amounting to Rs. 921-14-0; the committee had received assistance to Rs. 750, thus showing the deficit of Rs. 171-14-0. The total expenditure of the 2nd Provincial Conference amounted to Rs. 778-6-0 thus showing a deficit of Rs. 28-6-0 only as the Provincial Fund Committee had sanctioned the sum of Rs. 50 for the same. The accounts were passed and the report was duly received.

The Committee also considered the letters received from some of the delegates of the annual conference and resolved as follows

Resolved that the Reception Committee had arranged for the accommodation of all the delegates in the hotel and those who have come were all accommodated in two different hotels, viz., Welcome Hindu Hotel and the Kamal Vilas Hindu Hotel, Fort, Bombay. Since the delegates had gone and stayed in the different places and since our Accommodation Committee had no knowledge of this and since the Reception Committee had already sent its final accounts to the General Secretary the Committee will not be able to entertain the bills submitted by the delegates.

The Committee directs the Secretary to send the correspondence and the resolution to the General Secretary for favour of information and action and also to the delegates concerned asking them to correspond directly with the General Secretary in the matter.

Karachi (Sind): Managing Committee meeting held on 17—2—41. 5 members were present.

Resolution No. 5: Minutes of the meeting held on 8—12—40 were read and confirmed.

Resolution No. 6: Accounts for Nov. and Dec. 1940 were considered and passed.

2. General Body meeting held on 17—2—41. 6 members were present.

Resolution No. 12: Minutes of the meeting held on 8—12—40 confirmed.

Resolution No. 13: Considered letter No. 15 dated 30—1—41 from Provincial Secretary, Bombay.

(*a*) Resolved that this Branch adheres to its resolutions passed at its meeting held on 10—11—40 and maintains that the same is correct according to the facts.

(*b*) Resolved that the 2nd Provincial Conference which was held in November last was held in accordance with the rules of the Association and by-laws and does not violate any Branch.

Resolution No. 14: The General Secretary be requested to take action for forming a Sind Provincial Branch in view of the fact that Sind is a separate Province and has no connection with the Bombay Presidency.

Jullundur (Punjab): Meeting held on 16—2—41. 5 members were present.

Proceedings of the last meeting were read and confirmed.

Dr. Dal Singh narrated the proceedings of the Bombay Annual Conference.

Resolved that the Provincial Secretary be requested to arrange to early holding of the Provincial Conference if not in any other district, at least at his own place.

Resolved that as a minimum fee of Rs. 2 for each ruling member of the Association is established, all licentiates are requested to become members.

Madura (Madras): The meeting of the Madura Branch of the All India Medical Licentiates' Association was held at 5-30 P.M. on Wednesday, the 26th March, 1941, at the dispensary of Dr. N. Suryanarayanan, in Sandaipettai St., Madura.

The following gentlemen, who were actually the members of the Association having cleared the latest V. P. Ps. of the *Indian Medical Journal* were present.

1. Dr. M. V. Natesan, 2. Dr. N. Suryanarayanan, 3. Dr. T. S. Venkataraman, 4. Dr. T. K. Devaji Rao, 5. Dr. R. Narasimham.

In addition to the above, a fairly good number of licentiates were also present at the meeting.

Dr. M. V. Natesan was proposed to the chair. The chairman regretted that no meeting of the Association had been held for a very long time and hoped that hereafter at least meetings will be held more regularly and important matters affecting the Licentiates will be seriously considered. As for the past two or three years the Association has not had any office-bearers, the former secretaries having forfeited their membership by default of their not having received the V. P. cards of the *Indian Medical Journal* sent by them, the meeting proceeded to elect a fresh set of Office-bearers for the year.

1. President: Proposed by Dr. T. S. Venkataraman and seconded by Dr. N. Suryanarayana Dr. M. V. Natesan was unanimously elected President of the Association.

2. Secretary: Proposed by Dr. T. K. Devaji Rao and seconded by Dr. R. Narasimham, Dr. N. Suryanarayanan was unanimously elected Secretary and Treasurer of the Association.

The meeting decided to run the Association with only one Secretary for the time being.

Resolutions: The following resolutions were passed at the meeting.

Resolution I. A.: "This meeting of the All-India Medical Licentiates' Association, Madura, views with strong disapproval the proposal to style medical men who have undergone the five-years' course in the Stanley Medical School as D. M. S. as it does not give the status of a graduate to the small number of young men who have undergone this course, but it does, unnecessarily and unjustly push the vast body of Licentiates who had undergone the four years' course further down the degraded scale against which they have been agitating for the past 36 years."

Proposed by Dr. N. Suryanaarayanan and seconded by Dr. T. S. Venkataraman, Passed unanimously.

Resolution I. B.: "This meeting further urges that if the name must be changed at all, the justice and fairplay require that all present licentiates whatever the period of their medical school course may have been, must be allowed to style themselves D. M. S just as on the previous occasion, medical men with two and three year courses and styled Hospital Assistants were allowed to style themselves as L. M. Ps. along with those who had undergone the 4 years' course."

Proposed by Dr. N Suryanarayanan and seconded by Dr. T. S. Venkataraman passed unanimously.

Resolution No. II.: "This meeting of the All-India Medical Licentiates' Association is fully aware of the historical and traditional backgrounds of the indigenous systems of medicine in India, the hold it has on the people, its cheapness and suitability to the poverty of the masses and its several admittedly good points all which factors actuated the previous popular Governments in encouraging the systems by opening the School of Indian Medicine and several dispensaries in the country."

Modern Medicine in whose temple this Association is a votary, founded, as it is, on the collective wisdom of our ancestors, drawing as it does, upon all the present-day knowledge of Science and Industry, is always eager to assimilate all that is good for the relief of suffering."

"This Association is therefore of opinion that every one of the objects which Government have in view could have been better served if additional diplomas had been instituted for specialised studies and courses in indigenous medicine as are done in the case of Tropical Medicine, Public Health, Tuberculosis etc., instead of opening a different school and a separate Register and creating a situation, which has already begun to defeat the purpose for which these were done, produced strife and discord among the votaries of medicine, doubt and confusion in the minds of public and wasteful expenditure to the tax-payer".

"This Association therefore requests Government to be pleased, after making suitable modifications in the curriculum and admissions in the School of Indian Medicine, to range with the University to institute a special diploma in Indian Medicine."

Proposed by Dr. T. K. Devaji Rao and seconded by Dr. T. S. Venkataraman. Passed unanimously.

Resolution No. III.: "Resolved that the Secretary be authorised to communicate copies of the above resolutions to the authorities concerned".

Moved from the chair and passed unanimously.

Consolidated Accounts of the All-India Medical Licentiates' Association

October 1940 to January 1941

Receipts		October 1940	November 1940	December 1940	January 1941
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
To Subscription (old and new)	...	835 11 0	408 10 0	763 3 0	1484 4 0
,, Advertisement	...	857 10 10	1395 14 9	1033 15 0	846 6 0
,, Interest	...	113 12 0	940 6 0	2 0 0	227 8 0
,, Miscellaneous	...	0 8 0	1 4 0	154 7 0	1 8 0
,, Loan from General Secretary, Karnal	...				121 5 3
		1807 9 10	2746 2 9	1953 9 0	
Balance of last month	...	70388 14 11	70474 10 6	71285 6 9	2680 15 3
					70591 1 3
		& £ 157 17 10	& £ 157 17 10	& £ 157 17 10	& £ 157 17 10
Grand total	...	72196 8 9	73220 13 3	73238 15 9	73272 0 6
	...	& £ 157 17 10	& £ 157 17 10	& £ 157 17 10	& £ 157 17 10
DETAIL OF BALANCES					
War Loan	...	£ 157 17 10	£ 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	85 0 0
New loans	...	8200 0 0	8200 0 0	8200 0 0	8200 0 0
Omera Gold Medal Account	...	387 6 11	387 6 11	387 6 11	387 6 11
5 years Cash certificates	...	4010 10 0	...	...	...
G.P. Notes	...	16291 9 0	16291 9 0	16291 9 0	16291 9 0
Government Bond for S. S.	...	9409 2 1	9409 2 1	9409 2 1	9409 2 1
,, ,, ,, 1943	...	5600 0 0	5600 0 0	5600 0 0	5600 0 0
Imperial Bank of India, Delhi	...	8278 11 6	13108 0 6	13108 0 6	13291 3 6
P. O. S. Bank with President	...	2 11 5	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	793 12 1
With Branches	...	379 1 3	379 1 3	312 12 0	312 12 0
With Managing Editor:—					
In Bank	...	1273 7 8	1405 11 8	1390 10 5	1082 15 5
In Stamps	...	17 4 0	16 2 0	13 1 3	29 9 9
In Cash	...	45 13 8	17 3 5	14 2 2	89 12 11
With General Secretary:—	...	116 3 9	32 1 9	...	...
With Honorary Treasurer:—					
In P. O. S. Bank	...	11896 7 6	11661 7 6	11448 7 6	11106 7 6
In P. N. Bank	...	3655 0 2	3724 0 5	3273 2 5	4416 7 11
In hand	...	32 5 6	98 2 9	157 5 6	147 12 3
Grand Total	...	Rs. 70474 10 6	71285 6 9	70591 1 3	71320 8 9
	...	& £ 157 17 10	£ 157 17 10	£ 157 17 10	& £ 157 17 10
Payments					
Printing: *I. M. J.*	...	491 0 0	825 7 3	317 3 6	692 13 0
Establishment	...	423 0 6	423 0 0	451 0 0	423 0 0
Rent	...	60 0 0	60 0 0	50 0 0	60 0 0
Stationery	...	37 9 6	15 12 6	27 0 0	12 6 3
T. A.	...	95 6 0	...	326 13 6	...
Postage	...	180 14 6	187 8 6	226 9 9	454 7 3
Miscellaneous	...	64 4 3	82 12 3	115 1 3	74 1 3
Propaganda	...	32 6 0	...	12 10 0	72 3 0
Branches	...	265 3 0	259 1 0	201 7 6	49 12 0
Omera Gold Medal	...	47 8 0	...	...	...
Commission and other charges by the Imperial Bank of India, Delhi	...	7 0 0	0 13 0	...	6 0 0
Income-tax	...	17 11 0	47 0 0	...	38 5 0
Other Printing	...	...	14 0 0	139 14 0	18 8 0
Payment to contributors	...	...	20 0 0	...	50 0 0
Bombay Conference	...	...	...	750 0 0	...
		1721 14 3	1935 6 6	2647 14 6	1951 7 9
Balance in hand	...	70474 10 6	71285 6 9	70591 1 3	71320 8 9
		& £ 157 17 10	& £ 157 17 10	& £ 157 17 10	& £ 157 17 10
Grand Total	...	Rs. 72196 8 9	73220 13 3	73238 15 9	73272 0 6
		& £ 157 17 10	& £ 157 17 10	& £ 157 17 10	& £ 157 17 10

The difficulties in ascertaining the age of parties was noticed by the Age of Consent Committee (formed to consider amendments to the Sarda Act) which dealt with the matter as follows:—

"The difficulty in ascertaining the age of the girl is another impediment to the efficient working of the law. Excepting the literate classes few people can give the correct age of their girls: and when cases come to Court the oral evidence of the witnesses regarding age is likely to be uncertain. The registration of births, excepting in a few places, is defective, particularly in rural area. It is not certain that all births are registered; the name of the child does not appear in the register: and there is no sequence of birth given regarding the particular child entered therein. All things tend to make the ascertainment of the age of the child difficult and uncertain. No doubt medical evidence and X-ray apparatus may help to overcome these difficulties; but doctors often differ and even the X-ray test does not ensure the exact age. The X-ray apparatus is rarely available and even when available makes a mistake of one year while the range of error in the case of medical opinion can be even greater."

A NATURAL INSTINCT

The consciousness of age appears to be inborn in every person. You can see in the nursery where one toddler would sooner get into grips with another than remain in the lap of his governess. At school the small boys are hardly seen in the company of big boys: and you see it most pronounced when youth displaces childhood. Very particular are young persons in selecting friends more or less of their own age, specially if it's a friend of the other sex.

This reminds me of a class-fellow of mine who was studying with me for the Bar. When introduced to girls, practically always, he asked: When is your next birthday? And knowing it was rude to ask a lady her age, his next question was: In how many years more will you celebrate your twenty-first birthday? If he got a satisfactory answer to the question, the acquaintance continued. Otherwise he made himself scarce.

DATA

The determination of the age of a person has so many medico-legal bearings that it is impossible to refer to every available source that can enable us to arrive at a correct conclusion.

Four main data are the basis upon which medical experts give their opinion as to age of an individual:—

1. The eruption of the teeth.
2. Height and weight of the body.
3. Development of the body and hair.
4. Ossification, and its examination by X-ray.

I think it is unnecessary to enter into a detailed examination of these items, for, you can find them in any book on Medical Jurisprudence. I may, in passing, only remind you that Dr. Sahay, in the paper which he read on the Determination of Age by X-ray Examination, held the opinion that, of the various tests for the determination of age, the teeth still play the most important part. He tried to dispel the notion that X-ray findings are infallible; and was of the view that (except in border line cases) he would prefer to be guided by teeth and other general findings than X-ray examination if it disagreed with other findings. For, he went on to tell us, that X-ray findings, being rigidly based on tables given in old text-books, could make a possible error of four to six years. Nevertheless, we should not run away with the idea that X-ray examination is of small value. All authorities are agreed that it affords a definite and scientific method of seeing the condition of the bones. What, of course, we should not forget is that it is an additional test which must be considered along with others and should not be taken as the sole criterion.

AGE OF EMBRYO

There are cases where the age of the earliest embryo may have a bearing on the chastity, criminality or innocence of a person. It is necessary to know the time at which an embryo can be detected. This has been sub-divided into two classes, viz., the age of an embryo upto the sixth month and the age of the foetus between six months of intra-uterine life and full term. A full discussion of this subject is to be found in Galabin's Midwifery and in Keith's Human Embryology. A short synopsis giving the various developments and changes that occur each month can be found in any book on Medical Jurisprudence.

The determination of the nature of the embryo between the second and the third months presents greatest difficulty. The material for examination is either placed in a dish of water or alcohol and the coagula gently washed. Then the detection of the decidua and chorion determines the age. Between the third and the fourth month the foetus is commonly identified without much difficulty. The ovum generally escapes first, leaving the decidua behind. In the event of there being a semi-decomposed or a dried mass of blood clot often an X-ray plate is taken.

LIVE-BIRTH

Allied to this topic is the question of the live-birth of immature foetus. This subject presents a very interesting study. According to Mr. Stanley B. Atkinson (writing in the *Law Quarterly Review*, April 1904) a child is live-born when after entire birth it exhibits a clear sign of vitality, i.e., persistent activity of the heart. Mr. Justice Wright's famous test is: "Whether the child was carrying on its being without the help of the mother's circulation after birth?" In layman's language the question on such occasion which a medical man has to answer is: Was the child born alive? The doctor looks for the Rule of Seven in answering this question, viz.,

1. Breathing, which in its turn includes
   (*a*) Shape of chest
   (*b*) Position of diaphragm
   (*c*) Air in the gut
   (*d*) Air in the lungs
2. Crying
3. Muscular movement
4. Circulation and heart beat
5. Contents of the gut
6. Umbilical cord
7. Skin

ABORTION AND INFANTICIDE

Medical opinion is of great value to Courts in determining the age of the embryo or of a live-born child in cases of abortion and infanticide. Abortion,

when it amounts to criminal miscarriage, is dealt with in India by Sections 312 to 316 of the Indian Penal Code. Criminal abortion is the unlawful expulsion of the foetus. If the miscarriage takes place before the women be quick with a child, the term of imprisonment awardable is three years but if it be after the woman is quick with a child, imprisonment for a period of seven years may be awarded. Direct evidence as to whether the woman was quick with a child is seldom, if ever, available because she is almost always a consenting party to the abortion, and she, therefore, neither gives evidence nor permits her person to be examined by a doctor.

What is known as infanticide in English Law is in India the murder of a newly born infant which under Section 302 I.P.C. would be punishable by death or transportation for life. The Infanticide Act of England passed in 1922 has, under certain circumstances, treated infanticide as man-slaughter and not murder. The Indian law does not define the expression "newly-born", but the Infanticide Act of 1938 in England treats a child as newly born if it was born within twelve months before its death. It must, however, be remembered that by Explanation 3 to Section 299 I.P.C. it has been provided that the causing of the death of a child in the mother's womb is not homicide. The offence, however, is punishable under Section 315 and 316 I.P.C.

KIDNAPPING, RAPE, ETC.

Besides abortion, the chief class of criminal cases in which Courts are called upon to determine age are kidnapping, rape, procuration or sale of minor girls for prostitution, and now, under the popularly known Sarada Act, the performance of premature marriage.

Kidnapping is of two kinds: Kidnapping from British India, and kidnapping from lawful guardianship. It is with the latter that we are concerned. Kidnapping from lawful guardianship, for our immediate purpose, may be said to be the taking or enticing, of any minor under fourteen years of age, if a male, or under sixteen years of age, if a female, out of the keeping of the lawful guardian of such minor without the consent of its guardian. (Sec. 361 I.P.C.)

By far the most frequent number of cases which occur are cases of kidnapping of girls. Almost invariably the medical practitioner is called in to opine whether or not the girl who was kidnapped is under sixteen years of age. The prosecution, apprehensive of failing on this ground, has always a second string to its bow: and the charge, instead of being under Section 363 I.P.C. for simple kidnapping from lawful guardianship, is alternatively also laid under Section 366 I.P.C. for abducting the woman in order to force or seduce her to illicit inter-course. A shrewd prosecutor would also add a charge under Section 366-A for inducing a girl under the age of 18 years to go from any place or to do any act so that she may be forced or seduced to illicit intercourse with another person.

Some of the other allied provisions are to be found in Sections 366-B, 369, 372 and 373 I.P.C. In all the sections age is an important ingredient of the offence mentioned therein. Abandonment or exposure of children under twelve years of age by parents or guardians is also punishable as an offence (Sec. 317 I.P.C.)

In cases of rape the medical expert is invariably requisitioned. Section 375 I.P.C. defines rape, but into its details we need not enter. We all know that a man is said to commit rape when he has sexual intercourse with a woman without her consent. It is also "rape" when the sexual intercourse is with or without the consent of a girl under fourteen years of age. Confining ourselves to the scope of tonight's subject, we are concerned with rape by consent of girls under fourteen years of age. Sexual intercourse by a husband with a wife under thirteen years of age is also "rape" but rarely, if ever, such cases are brought to light.

It is in cases of rape or kidnapping that a lawyer is often called upon to seek the aid of the medical expert as to age. But the opinion obtained in such cases is not always a sure guide.

A RAPE CASE

In a case of rape the girl was alleged to be eleven years of age. The doctor who appeared as a witness for the prosecution unhesitatingly gave her age to be between ten and eleven years. Having seen the girl in the witness-box, having cross-examined her for hours, when she wrested me more than once, I declared myself amazed at her eleven years. But I was not only trusting my eyes. During the cross-examination she had said that the first person to whom she had run and reported the matter was her younger sister. This sister was called as a Court witness at once to assist and she turned out to have been married four years ago at the age of fourteen and had two babies. Now, surely, medical science on this subject may not be precise, but it is not so imperfect as all that. It is the giving of this kind of evidence against which the medical practitioner must guard himself. Very often his sentiments are played upon and his sympathy aroused in a wrong cause on the ground of honour, family, position, etc.

A KIDNAPPING CASE

I must, however, give you a contrary example which will at once show that it must not be imagined, as it is sometimes thought amongst lawyers, that medical evidence on the question of age is worthless and can be dispensed with.

One morning a young lad, who did not appear to me to be more than fourteen or fifteen years of age, strolled into my office and in a much agitated manner wanted to know whether in response to a summons to appear as a witness he could just refuse to attend Court. I gathered from him that he had fallen out with his brothers, that a guardianship case was pending about him and that he had instituted a suit as major for partition of his properties. He also told me that his ex-tutor, who was helping him in the partition suit, had been run in for kidnapping him from the guardianship of his brothers and that it was in this criminal case that he had been summoned as a defence witness on behalf of his ex-tutor to deny the allegation that he had been kidnapped. With the guardianship case still pending, he was afraid that his brothers would physically remove him after he had given evidence, as they claimed him to be a minor under fourteen years, whereas he professed to be above 18 years of age. I confess I felt perplexed. How could any one prevent a lawful guardian from taking charge of his ward? I told him that I could move a petition before the District Judge in the guardianship matter praying that, pending the hearing of the case in view of the litigation between him and his brothers, some other person should be appointed as his guardian. But said he, "That's all very well. I have to appear as a defence witness in Court to-morrow." The situation appeared still more hopeless. He wanted me to appear before the magistrate as his Counsel to protect him from passing into the custody of his brothers. He was cursing his ex-tutor, the accused in the criminal trial, who was out to save himself by his evidence without giving a thought to his safety. The boy continued to protest in vain that he was a minor: but how could I disbelieve my eyes? Then a brave wave came. I took him to the Civil Surgeon and told him that I had an offer from the boy to appear as his Counsel but that I could not do so as I was sure he was a minor, though the boy claimed to be a major. The Civil Surgeon

examined him thoroughly, applying the X-ray test too and gave me his written opinion the following morning that the boy was about nineteen years of age. He gave detailed materials and points for his opinion, and I must confess that I was thoroughly suprised, though it was a pleasant one. So, you find, appearances can be deceptive, not only in the case of girls but even in those of boys. Armed with the Civil Surgeon's certificate I appeared in Court for the boy. To complete the story, after the boy's examination, as soon as we were emerging from the Court room, one of his brothers made a dash to catch him but as swift as a steed he jumped into my car and the next moment we drove off. The Civil Surgeon's certificate was my Maginot Line but I wonder for how many seconds it could have actually resisted the arms of my client's brother had not my car performed the "miracle at deliverance"—that was Dunkirk. But the certificate might have stood me in good stead twenty-four hours later before My Lord the Chief Justice for a Writ of Habeas Corpus.

AGE OF ACCUSED AS DEFENCE IN RAPE CASES

I was dealing with the provisions in the Criminal Law with regard to minor girls with special reference to rape on such girls. Another defence which may be taken in a case of rape is that the accused was of such tender years that he was incapable of committing the offence. In such a case also the medical expert will be called upon to give his opinion as to the age of the accused. In England a boy under fourteen years is presumed to be incapable of committing rape. Although in India there is no minimum age at which a male person may be presumed to be incapable of committing rape, Courts are guided in this respect by Sections 82 and 83 of the Indian Penal Code.

AGE AND CRIMINAL LIABILITY

Section 82 I. P. C. provides that nothing is an offence which is done by a child under seven years of age. This is one of the exceptions provided in the Penal Code in the Chapter on *General* Exceptions. Thus, under the age of seven a child cannot be convicted of any offence, for, until he reaches that age he is presumed to be *doli incapax*, i.e., not capable of committing a wrong, and the presumption is *presumptio juris et de jure*, a presumption which cannot be rebutted by even the clearest evidence of a mischievous discretion. Thus, if the accused be a child under seven years of age, the proof of that fact would be *ipso facto* answer to the prosecution.

The next rule of exception is under Section 83 I. P. C., viz., nothing is an offence which is done by a child above seven years of age and under twelve, who has not attained sufficient maturity of understanding to judge of the nature and consequence of his conduct on that occasion. According to the English law, a person between seven and fourteen is *prima facie* deemed to be *doli incapax*, but this is a rebuttable presumption. The language of Section 83 I. P. C. would not probably bear the same interpretation. It appears to me to be just the opposite of the English law, namely in India it would be upon the defence to establish that the accused had not attained sufficient maturity of understanding. Thus we have the well-known case of Most. Aimona, a girl of ten years, who was seen running out of a room where she had been with her husband who was found mortally wounded on the neck. She hid herself in a field and was not found until the afternoon. It was held that she was *doli capax* and that the Court would infer from the circumstances of the case such a degree of malice as to justify the application of the *maxim malitia supplet aetatem*, i.e., malice supplies the want of age.

Under Section 130 of the Indian Railways Act (IX of 1890) a child even under seven years is liable to punishment if it does anything to wreck a train, to hurt or attempt to hurt persons travelling by a train or to endanger the safety of persons travelling by a train. Similarly, under some Local and Municipal enactments children are not exempt from liability.

CHILD LABOUR

The Indian Factories Act, 1934, provides that no child who has not completed his twelfth year shall be allowed to work in any factory. Persons between twelve years and seventeen years are permitted to work in factories if they obtain a certificate of fitness from a doctor. Under the Indian Mines Act, 1923, no child below fifteen years can be employed in a mine or be allowed to be present in any part of a mine which is below ground: and even persons under seventeen years cannot go below ground without a certificate of fitness.

The Bihar & Orissa Excise Act prohibits the sale of liquor or any intoxicating drug to any child apparently under the age of sixteen years; and children under the age of fourteen years are not permitted to be employed by a vendor in premises where liquor is consumed by the public.

CONSENT AND CRIMINAL LIABILITY

There are however certain acts which are not penal if done with the consent of persons against whom it is performed. But it is provided by Section 90 I. P. C. that consent of a person under twelve years of age would not exonerate an accused if he is otherwise liable.

Here I may advert to a passage in Modi's Jurisprudence to which Dr. Sahay was kind enough to draw my attention. Dr. Modi says:—

"The female on whom rape is alleged to have been committed should be allowed to give her own account of the act without any questions being put to her. She should never be examined without her written consent in the presence of a witness if she is of and over twelve years of age and is capable of understanding the nature and the implication of the examination, or without the written consent of her parent or guardian if she is a child under twelve years of age or a feeble-minded person."

Dr. Modi has by these observations raised a knotty problem of much importance. The question is not free from difficulty. Perhaps we may be able to arrive at a correct conclusion if we keep the question of civil and criminal responsibility separate. There can, I think, be no doubt that if a medical practitioner, bonafide, in the course of his professional employment, followed the course suggested by Dr. Modi, he would not be criminally liable. But, I am afraid, even the consent of a minor above twelve years of age may not exonerate him from being sued for damages, for its validity will depend upon the actual capacity of the minor. The civil liability cannot, in my view, be superseded by the provisions of Section 89 I. P. C. which is an exception provided to protect persons against criminal action in given circumstances. Personal status is a recognised ground on which the capacity to contract is based. Thus infants, lunaties etc., as such suffer from incapacity to enter into contracts. It is not so in the law of torts, which takes cognisance not of status, but of actual capacity. Nor is there any defined limit to personal capacity. Thus it becomes a question of fact in each particular case.

It will be noticed that Section 90 I. P. C. does not describe what is not consent. Eminent jurists and judges have told us what is meant by consent. Consent means an active will in the mind of a person to permit the doing of the act complained of; and knowledge of what is being done, or of the nature of the act that is being done, is essential to a consent to the act. The medical man following Dr. Modi's advice must (apart from the question of civil liability) bear in mind that there is a difference between consent and submission. Every consent involves a submission, but it by no means follows that a mere submission involves consent. The child who is being brought or produced before a medical practitioner may be in undesirable hands. He or she may be under fear of injury or some misconception of fact, cleverly concealed from the doctor. It is, therefore, of great importance that the doctor should satisfy himself that the nature of the act done is known and fully understood by the child and that it is a free agent *i.e.*, the consent of the child has not been brought about by coercion, fraud or misrepresentation. It should also be remembered that if a plea of consent is raised as a defence under Section 89 I. P. C. the onus of proving it lies upon the person setting it up.

Talking of consent and criminal responsibility we might also refer to Exception 5 of Section 300 I. P. C. which provides that "culpable homicide is not murder when the person whose death is caused is above the age of eighteen years, suffers death or takes the risk of death with his own consent." Cases of such kind are rare. Suttee, which is now extinct, could fall within this Exception. The abetment of the suicide of a person under eighteen years of age is under Section 305 I. P. C. punishable by death or transportation for life or imprisonment. In case of persons above eighteen years of age such abetment is punishable up to ten years imprisonment.

CHILD MARRIAGE

I now turn to The Child Marriage Restraint Act (XIX of 1929), to give the Sarada Act its proper name. This Act defines "Child" as a person who, if a male, is under eighteen years of age and, if a female, is under fourteen years of age. The Act restraints the solemnization of a marriage to which either party or both happen to be a child. A prosecution under this Act can not succeed unless it is established beyond doubt that the child in question is below the minimum age. Difficulties in ascertaining the exact age of parties contracting marriage are a great stumbling block in the successful working of the Act. Little wonder then that an author like Mr. Tekchand has pronounced the Act to have been a dead letter. Rai Saheb Harbilas Sarada, the father of the Act, protests vehemently against this observation. He says :—

"They say that the Act is a dead letter. How can an Act which provides penalties for an offence become a dead letter? A piece of criminal legislation can become a dead letter only if the Government declines to enforce it or in practice, repudiates it".

I am sorry to say that some of the Executive Officers treat the Act as a necessary evil. Commenting on this Dr. Miss F. E. Rathbone, M. P. says :—

"The necessity for enforcing respect for law and order has recently been much in the minds and on the lips of those in authority all over India. But laws concerning social reforms are apparently an exception being intended rather to quiet the conscience of the legislature and their critics at home and abroad than to be obeyed. The official attitude was indicated after the first recorded prosecution under the Act. The offender who had given his ten-year-old daughter in marriage in defiance of the warning of the village Headman, was sentenced to one month's imprisonment, the maximum permitted under the Act. Instantly the Punjab Government telegraphed to order the man's release".

In my view it is really up to public-spirited persons and social reform societies to take care on the one hand, that the law is enforced, and, on the other hand, that it is not taken advantage of by unscrupulous persons. The recent amendments in the Act have considerably facilitated matters as now under Section 12 the Courts have been empowered to issue injunction prohibiting marriage. This may delay a regular wedding for a time but it will stop indiscriminate child marriage. Here is a field of operation in which both lawyers and doctors can be of great service to India by harmoniously pooling together their resources.

AGE OF ACCUSED AND SENTENCE

In almost every case Courts determine the age of the accused. According to law, no doubt, it is the accused who, like the witness, is required to give his age, name etc., when he is called upon to answer to the charge against him; but in practice it is the Court which puts down its estimate of the age of the accused. Even where the question of criminal responsibility is not in issue, the determination of the age of the accused proves of assistance to Court in estimating the sentence to be awarded. The general run of such cases in practice present no difficulty; but quite a number of cases do crop up where for the purposes of sentence only, the question of the age of the accused becomes a matter of some importance, particularly in the case of first offenders under 21 years of age where the Court has power, under given circumstances, to release the offender on probation of good conduct, instead of sentencing him to any punishment.

Generally, subject to the prescribed limit, the sentence to be passed is within the discretion of the Court. The Indian Reformatory Act (VIII of 1897) defines a youthful offender as any boy under the age of fifteen years who has been convicted of any offence punishable with transportation or imprisonment. The Act empowers the Court sentencing the boy to direct that instead of undergoing imprisonment he may be detained in a reformatory school for a period of not less than three years and not more than seven years. Even if the Court passing the sentence does not give such a direction, the District Magistrate may do so, but before either the trying Court or the District Magistrate pass such an order they are required to hold a preliminary enquiry. In such cases invariably the medical expert is called in to give his opinion.

The Whipping Act (IV of 1909) provides for whipping in lieu of imprisonment for juvenile offenders, who have been defined as boys under sixteen years of age. By Section 392 Cl. (2) Cr. P. Code in the case of a boy under sixteen years of age, whipping is not to exceed fifteen stripes; and under Cl. (c) males more than forty-five years of age cannot be sentenced to whipping. In spite of the much maligned man-made law women are absolutely exempt from whipping.

AGE OF THE DEAD

The medical practitioner is not only called upon to determine the age of the living, but, perhaps, a Police Surgeon's frequent duty, as Dr Sahay will tell you, is to pronounce his opinion as to the age of the dead. Here it is possible for him to make a more exhaustive examination as the bones are at his disposal and he can easily judge the progress of ossification.

MINORITY AND CIVIL LAW

In civil cases the question of the minority of parties may arise in any case but it is not often a matter of any considerable controversy, except in some cases of Contract, Tort, Guardianship, Probate or Trust. Minors are, as a rule, capable of holding and receiving property and liable for their wrongful acts, but incapable of making a will or of entering into valid contracts.

The Indian Majority Act (IX of 1875) provides that every person shall be deemed to have attained his majority when he shall have completed his age of eighteen years and not before. That is the general rule. Where the minor is under the guardianship of the Court of Wards, or is under a guardian appointed by Court, he is not deemed to attain his majority until he is of twenty-one years of age.

The Guardian and Ward's Act (VIII of 1890) is specially designed for the protection of the person and property of minors. Almost any person can apply to the Court that a proper person may, under given circumstances, be appointed the guardian of the person or property of the minor. In such cases, the minor so-called, may contest the fact of his minority, and the aid of a medical man may be requisitioned.

Elaborate provisions are to be found in the Civil Procedure Code for the representation and protection of parties who are minors; and a special duty devolves upon the judge to see, in the case of a compromise, that it is to the benefit of the minor.

AGE AND COMPETENCY AS A WITNESS

There is no fixed age limit at which a person may or may not depose in a Court of Law. Section 118 of the Indian Evidence Act runs as follows :—

"All persons shall be competent to testify unless the Court considers that they are prevented from understanding the questions put to them, or from giving rational answers to those questions, by tenders, extreme old age, disease, whether of body or mind or, any other cause of the same kind."

In England under Section 80 of the Children Act, 1908, the unsworn evidence of children of tender years is admissible when the Court satisfied that though the witness does "not understand the nature of an Oath", it is "possessed of sufficient intelligence to justify the reception of the evidence and to understand the duty of speaking the truth". In India a mass of case law has clustered round this point. Whether or not a child is competent to give evidence is a question for the judge to decide. Following the English Law it has been held in India that before a child of tender years is examined as a witness the Court should test his or her capacity to understand and to give rational answers, and to understand the difference between truth and falsehood. Understanding is the sole test of competency. The Court has to ascertain, in the best way it can, whether, within the extent of its intellectual capacity and understanding, the child is able to give a rational account of what it has seen or heard or done on a particular occasion. If a person of tender years or of very advanced age, can satisfy these requirements, his competency as a witness is established.

FOREIGN MEDICAL NEWS

Our American Letter

(From Our Own Correspondent)

DRUGGING OF WAR FLYERS

The fact that war flyers, particularly dive bombers, lower their altitude from some 10,000 feet and more to 500 feet and less in an extremely short time to gain again rapidly the highest altitudes, has raised the attention of physiologists. Such rapid change of altitudes places very high requirements on the body, particularly on the blood circulation system.

It is frequently said and written—and especially so of the German Stuka divers—that they are being drugged before they take-off, like horses before a race. Otherwise, it is believed, they could not stand the strain of the rapid diving which makes them extremely dizzy, makes them lose acuity of vision and hearing, have paralysis of the limbs and become even half conscious.

The drugs in use for this drugging (or doping) are said to be ephedrine and benzedrine and similar compounds, one of the characteristic qualities of which is the capacity of raising the lowered blood pressure. The heart rate is slowed down and there is an increase in both systolic and diastolic blood pressure. This is important for the flyers as the lowering of the blood pressure is considered one of the most unpleasant and even dangerous conditions which threaten the dive bomber. However, so far no exact evidence has been given that the blood pressure of these flyers has actually been lowered to a degree which would call for medicamentous support or that it has been lowered at all. Benzedrine is noted for its wide usage in college and university circles where the students use it frequently—not with the unrestricted approval of their doctors—to keep awake during their night studies before examination. It is well known that these are powerful drugs and even dangerous when given in another way than that fixed by exact studies.

In several countries there are investigations in progress to study the physiological effects of dive bombing, *i.e.*, of brusque diving in airplanes and rapid changes of altitude, and also possible pathological effects. There is no doubt that so far some questions raised by this new technique have not been answered.

Here you find a striking example of what the medical profession may well regard as the layman's encroachment into its domain. The judge tests the mental capacity of such witnesses, *albeit* without the aid of any medical opinion or instrument. I think, in some cases, the Courts would be well advised to have such a witness examined by a medical expert. But I do not know of any instance where this has been done. I believe, the medical profession has some special tests to offer whereby it may be easy to determine the mental calibre and understanding of a witness of tender years or extraordinarily advanced age. If this be widely appreciated, the services of doctors would also be required to aid judges in determining the competency of such witnesses.

TREATMENT OF WAR WOUNDS

When this War started, officials of the American Medical Association gave a picture of the part modern medicine would play in the War. They presented a series of developments of the last few decades that probably would result in more effective treatment such as blood banks for transfusions; better treatment for gas gangrene (in the last World War the American Expeditionary Forces in France, had a mortality rate from gas gangrene of more than 48 per cent); portable X-ray machines; new immunity protection, before injury, against tetanus: improved treatment for burns; advances in surgery, anesthesia and control of communicable diseases.

Recently a medical officer of the British army, Col. Colebrock, gave a lecture on the chemotherapy of War wounds. In former wars about 70 per cent of the deaths due to infections of wounds were caused by hemolytic streptococci. Experiments on mice had shown that injections of sulfapyridine or sulfanilamide protected them before they were infected with streptococci. For wounded the administration of the drug must be continued for at least four days. Fuller and James gave the following suggestions for administration: First dose, 1·5 Gm., of sulfanilamide (3 tablets) dissolved in 10 cc. of 1 per cent hot citric acid solution or hot lemon. Second dose, 2 hours later, 0·5 Gm. (1 tablet whole or partly crushed in order to delay absorption). Subsequent doses 0·5 Gm., whole or partly crushed, at 4 hours intervals for 4 days. Total dose 13·5 Gm. in 4 days. Toxic effects should be noted. If the drug was well borne but did not prevent infection, larger doses should be tried.

Lieut-Col. L. B. Cole, an authority on tetanus, recommended that antitoxin be injected intravenously as soon as possible after the man is wounded. He recommended 200,000 units as large enough to neutralize all unfixed toxin and prevent further absorption. There was no advantage in repeating the dose except in the case of severe infected wounds, when an additional 50,000 units might be given intramuscularly once a week. For control of the spasms he recommended avertin with amylene hydrate by rectum as for basal anesthesia. In severe cases this would stop the convulsion in from four to six hours, when it had to be repeated. In some cases two or three such doses daily for eight or more days might be necessary.

WAR AND BLOOD TRANSFUSIONS

This topic is treated again and again in medical journals of belligerent nations—obvious evidence of its actual importance. It started in Spain's civil war when physicians at Jorda's Institute in Barcelona asserted that blood transfusions save at least 10 per cent of the wounded. In England volunteers for blood donation have been enrolled all over the country, from whom blood is regularly drawn and sent to central depots in refrigerating vans.

In London the Medical Research Council which is in charge of the storing of blood, has issued a memorandum. The directors of the blood transfusion depots believe that some of the unpleasant reactions which have been described, may have been due to faulty technic, or the use of unduly hemolysed blood. The following points are stressed in the memorandum (1) The anticoagulant solution should be prepared from freshly distilled water, it should be filtered and autoclaved immediately. (2) All apparatus must be scrupulously clean (3) Surgical asepsis should be observed in collecting blood (4) Storage should be at 2 to 4° C (5) Blood showing undue hemolysis (extending more than 1 cm. into the citrated plasma) should not be used (6) Corpuscles and plasma may be mixed before transfusion by as little and as gentle agitation as possible (7) The blood should be warmed to body temperature before use, but not higher than to 104° F. The elimination of grouping errors as a cause of reaction is assumed.

A fleet of aircraft is used to carry blood from the depots in which it is stored to the hospitals and front lines. A wire crate containing ice bottles of blood is the unit for dispatch. The boxes are insulated, and ice is given into them during the flight. This ensures that the temperature inside the box will not rise more than 5 degrees C in 8 hours.

From Scotland C. P. Stewart published a study on the use of stored blood in transfusions. In surgical cases the therapeutic results appear to be independent of the age of the blood. But in such conditions as leukemia, anemia, septicemia and toxemia fresh blood is now used which has been in store as short time as possible and the results have greatly improved. It appears that stored blood is no more likely to produce reactions during the first fortnight than is fresh blood. But after that period the likelihood of reaction is increased. Therefore, while it is possible to use in cases of emergency blood stored longer than a fortnight, it seems better in ordinary cases to regard this period as the maximum.

INDIAN MEDICAL NEWS

OUR GENERAL LETTER

EXCESS OF I.M.S. OFFICERS IN THE PUNJAB

The large number of I.M.S. officers employed in the Punjab considerably exceeding the number reserved for them by the Secretary of State was criticised in the Punjab Assembly in its March Session during discussion on the Budget for the Medical Department, which amounts to Rs. 45,66,400.

The Opposition was led by Malik Barkat Ali (Muslim League), who recalled a notification of the Government of India dated 25th March 1937, according to which it was obligatory on the Punjab Government, after the introduction of provincial autonomy, to employ seventeen I.M.S. officers, eight of whom would constitute the Army Reserve. Malik Barkat Ali pointed out that the number of I.M.S. officers serving in the Punjab in 1938 was 34, which had increased to 36 in 1939 while in 1941-42 their number would be 30. He criticised the Government for unnecessarily burdening the provincial Exchequer and maintained that Sec. 246 of the Government of India Act on which the Education Minister took his stand last year, could not be applied to posts beyond the quota of 17, reserved for the I.M.S. by the Secretary of State. He said that the I.M.S. was essentially a military service and these officers should go to the army making room for private

medical practitioners who had distinguished themselves in the profession.

Malik Barkat Ali urged a revision of the scale of pay of the provincial civil medical service to bring it on a par with the other provincial services. Several members, including Khan Abdul Aziz and Sheikh Sadiq Hussan, pleaded for encouragement of the indigenous system of medicine.

Raja Ghazanfar Ali, Parliamentary Secretary, while agreeing that the number of I.M.S. officers should be reduced, pointed out that the Education Minister deserved credit for Indianising important posts in the Medical Department.

The House adjourned half an hour earlier for lack of quorum.

BLOOD TRANSFUSION SERVICE IN BENGAL

In order to provide for the large number of cases requiring blood transfusion during air raids, a scheme has been prepared for extending the Red Cross Blood Bank of Calcutta to serve the needs of A. R. P.

By this scheme, volunteers from prisons, who will be paid a small fee and from amongst the large body of Civic Guards two large potential sources, will be added to the existing comparatively small list of donors who now make free gifts of blood at intervals. Direct contact will be established between the Vice-President and the Imperial Serologist on the one hand and the Red Cross Society and the A.R.P. authorities on the other. The Inspector-General of Prisons and a representative each for the A.R.P. authorities and the Civic Guards are included in this Committee of the Blood Bank.

Prospective donors will be examined for fitness and grouped. The groups will be further divided into "safe universal donors" and "others." Only the "safe universal donors" will be placed on the A.R.P. blood donors' register. Their blood will be used when it is possible to group the recipient. These donors, especially those on the general blood donors' register, will be available for the daily needs of the local hospitals also. Arrangements will be made to take and store blood from the donors on the A.R.P. Register when an air raid is imminent or has actually occurred.

The scheme is partly in operation in Calcutta already. The blood is being used in the local hospitals or stored as plasma. The plasma for the transfusion is obtained from donors of all groups and made safe for use irrespective of the group of the recipient.

Thus, while donors from the A.R.P. register will be used for the needs of the local hospitals when there is no emergency, stored plasma from the donors on the general register will always be available for the needs of A.R.P. in an emergency. With the help of the various departments and organisations concerned, it is hoped that it will be possible to send blood or plasma by air to places outside Calcutta, or even outside India.

There has been a remarkable response from prisoners to the call for volunteers. In addition to the small fee given by the Blood Bank, these prisoners are given other concessions by the Provincial Government.

INCREASING USE OF INDIGENOUS RESOURCES

Boric acid for the Medical Stores Department, hitherto obtained from England, may shortly be manufactured in India. It is proposed to purchase crude borax, imported from Tibet, and arrange for the manufacture of boric acid. Another imported article, tablets Magnesii Sulphas 40 grains, is being manufactured by one of the Medical Stores Depots.

Peptone powder, used as a culture medium, has hitherto been obtained from England. It is now manufactured in India. A sample has been tested by the Military Laboratories and found to be a suitable substitute for the imported article. Accordingly the article has been transferred to the list of indigenous articles.

Arrangements are being made for the manufacture of Arsenii Triiodidum in the country.

U. P. GOVERNMENT OFFERS CONCESSION TO MEDICAL MEN VOLUNTEERING FOR WAR

Liberal concessions have been decided upon by His Excellency the Governor to the Provincial Medical Service and the Provincial Subordinate Medical Service officers and the other doctors not in Government Service who volunteer for military duty.

Announcing this decision, a Press Communique mentions that P.M.S. and P.S.M.S. officers on release from civil duty will retain a lien on their posts in the civil department. The period spent by them on military duty shall count towards pay, promotion and pension in the Provincial Medical Department.

Military duty will further constitute a strong claim for promotion to posts of Civil Surgeons in the case of P.M.S. officers.

As regards P. S. M. S. officers, military duty, especially on active service, will constitute a strong additional claim for promotion to the P. M. S.

In the case of doctors employed under municipal and district boards and private practitioners, military service by them will constitute a strong claim for their being recruited to the P.M.S. after the war and to the P.S.M.S. either during or after the war.

TUBERCULOSIS ASSOCIATION (INDIA)

Its annual meeting was held at New Delhi on March 25 when Her Excellency the Marchioness of Linlithgow said in the course of her opening address:

"In 1914, while a research student at Cambridge, Sir Pendrill Jones entered the Public Health Service as a tuberculosis officer, and from that moment, he never rested until he had achieved what was now known as the Papworth Village Settlement, which had attained a world-wide reputation and was recognised by leading physicians as the pioneer of a perfect after-care scheme, where an ex-tuberculosis patient could work and earn a living. The late Sir Pendrill Jones saw a vision and dreamed a dream, and lived to see his dream come true. He was truly inspiring and truly inspired."

Her Excellency continuing said:

"I am delighted to have the opportunity of once again presiding over this annual general meeting, and I think that the record of progress during the last year is an indication of the usefulness of the Tuberculosis Association of India, and is of good augury for the future.

"You have heard from General Jolly of the establishment of a Central Anti-Tuberculosis Clinic in Delhi, which is already doing very useful work. I hope that those members of the Association who have not yet seen it may find time to do so.

"The outstanding success of this year, from my point of view, is the decision on the part of the Govern-

ment of India to adopt the Kasauli Scheme which was put before them by the Association. Here will be found every facility for the training of specialists in tuberculosis, and within the next day or two, I am acting upon Dr. B. C. Roy's suggestion at our last annual meeting, that we should issue circulars to the provinces and the States, telling them that the Sanatorium had come into being, pointing out to them the advantages to be gained by giving it their support, and by making use of the training school for their doctors.

"I have to-day had news from Bengal that their Government has decided to establish a Sanatorium at Peshok in the Darjeeling district, and that steps for the acquisition of land are already under way. Dr. Frimodt-Moller, on my behalf, accompanied by the Surgeon-General, Bengal, and the Director of Public Health, Bengal, investigated various sites and decided on the Peshok area. A generous donor in Calcutta has given a sum to build and equip the sanatorium, and the Government of Bengal will add the amount necessary for the acquisition of the land and for improvement of the roads as also for their maintenance when completed.

"Here then, we have two large new institutions, one in the north and one in the south, which should prove of inestimable value to the general campaign.

"I have read with interest the Bombay Presidency's report and I congratulate the members on the energy with which they are prosecuting the work, and I note that proposals have been put forward in many districts for constructive programmes. One paragraph caught my attention, that which dealt with a grant which had been sanctioned by the Association to the Salvation Army towards the cost of building a hospital at Anand."

Proceeding, Her Excellency said: "I was appalled by a description in one of Dr. Frimodt-Moller's reports of a municipal clinic situated in one of the most famous hill stations. He describes it as the second worst clinic in India. A greater indictment would be hard to imagine. The doctor in charge, when questioned on his knowledge of tuberculosis, said a 'trainer' had given him some lessons. The 'trainer' turned out to be a health visitor, who was not even a medical man. The clinic was in fact a parody of tuberculosis clinic, and Dr. Frimodt-Moller advised that it should be closed immediately as it was doing a great deal more harm than good. In the same place, the tuberculosis hospital is in the charge of a doctor who for one month only attended a post-graduate course. I have given you these examples to show you what unbelievable ignorance exists in relation to tuberculosis among the public. If it was not so, they would not, for one moment, allow conditions of this kind in their midst, and once more, I appeal to all municipalities and to all public bodies to educate themselves in the steps necessary to combat this disease and to satisfy themselves that the doctors in charge of municipal clinics are fully qualified for their task. They must ask the applicant for the post what training he has had, and they must make him produce the evidence to that effect, and they themselves must realise that nothing less than a six months' course in a proper T. B. training institution with a few months in a modern T. B. clinic is good enough for one in charge of a hospital or a clinic. Only by everybody taking his share of responsibility, can we hope to carry out a successful campaign."

LT.-GENERAL JOLLY PRESENTS REPORT

Lt.-General Jolly, in presenting the annual general report, gave an account of the development of Provincial Associations which now were 12 in number and which shared the common efforts of the Association. The composition of the Central Committee of the Association was now fairly representative. The New Delhi Clinic was a landmark in the development of the Central Association, which was working in collaboration with the clinic, and the Kasauli Sanatorium, which was now nearing completion, was of far-reaching consequence. The Association was under a deep debt of gratitude to Lady Linlithgow for her deep personal interest in seeing the scheme through.

General Jolly referred to the good work done by the Tuberculosis Workers' Conference which had proved of immense value. General Jolly said that the Association was glad that Her Excellency was remaining in India for another year during which time the campaign against tuberculosis would have the benefit of Her Excellency's vision, experience and driving force.

OUR BOMBAY LETTER

The Bombay Budget

Ahmedabad to have a College: It is gratifying to note that the Bombay Government have provided Rs. 2,50,000 in the next year's (1941-42) budget for acquisition of land for the Civil Hospital, Ahemadabad. The building is intended to provide for a hospital and a Medical College. The present Medical School and Hospital site which will have necessarily to be sold may fetch about Rs. 20 lakhs which amount should be quite sufficient for the full-fledged College. It is hoped the Government will expedite this important work.

The grant provided under 'Medicine' next year is Rs. 52 lakhs against the actual expenditure last year of Rs. 46 lakhs and the current year's revised estimate of Rs. 55 lakhs. This latter figure is not comparable, because it includes non-recurring expenditure of about Rs. 4,00,000 for the purchase of land for the Ayurvedic College and Hospital, and about Rs. 1,25,00 for opening beds for military patients at the St. George's and J. J. Hospitals in Bombay. The provision for the nursing staff at Government Hospitals was being increased by Rs. 15,000, grants to charitable hospitals by Rs. 22,000 out of which Rs. 14,000 would be non-recurrent grants for buildings: scheme of subsidised medical practitioners by Rs. 25,000 (meant for the provision of 314 centres as against 217 centres this year—84 Allopathic, 126 Ayurvedic and 7 Unani Ayurvedic systems of medicine) provision of Rs. 89,000 for the maintenance of the Podar Ayurvedic Hospital and College in Bombay City: and hospital equipment, provision of Rs. 1,00,000.

Grant for Public Health: The grant for public health next year is Rs. 40 lakhs, as against the revised estimate of Rs. 30 lakhs during the current year and Rs. 28 lakhs actually spent last year. The most important single item included under this head is village water-supply, for which a provision of Rs. 15 lakhs is being made. Other important items are "appointment of district health officers and staff" and malaria survey in Kanara.

One of the pressing public health problems of this province is the eradication of malaria from the up-ghat tracts of the Kanara district, where this fever has been hyper-endemic for many years. A provision of Rs. 19,000 has been made for a malaria survey next year.

Anti-plague Measures: Outbreaks of plague in the Central and Southern Divisions in the last two years have shown the difficulty of dealing with epidemics under the present system, by which financial responsibility is laid on local bodies. It is proposed therefore, as an experiment, to appoint health officers to be paid by the Government in three selected districts, together with an adequate staff consisting of sanitary inspectors and health visitors. These will visit villages in turns and demonstrate by actual work the proper method of keeping villages clean. The total cost of the additional appointments is Rs. 61,000.

Under Civil Works: Rs. 1,20,000 is provided for acquisition of land for the new mental hospital and leper asylum at Ahmedabad, and the construction of "dharamshalas", quarters for hospital staff and other buildings at hospital and dispensaries for which a provision of Rs. 54,000 is made.

Bombay's quota for Medical Conferences: Bombay has the proud honour of having elected presidents for both the Special Conferences recently held in India. Dr. S. R. Moolgaonkar presided over the Surgeons' Conference at Delhi and Dr. N. A. Purandare over the Obstetric sessions at Calcutta.

Dr. Moolgaonkar suggested to devote a week for the future Conference. I go a step further and request the leaders of all the Specialist and Medico-political Conference to hold their sessions at one and the same place every year, say for about 10 days at a stretch. It would be of the greatest advantage to the medical men and at the same time economical. The Vizag Indian Medical Association Conference has passed a resolution to this effect and it would be in the fitness of things if the Indian Medical Association moves surely and quickly in the matter.

Diphtheria and Acute Tonsillitis.—There is a striking contrast between the onset of an attack of acute tonsillitis and an attack of diphtheria. Tonsillitis begins explosively with a chill, high fever, nausea, vomiting, headache, backache and a fiery red and swollen throat, which renders swallowing an exceedingly painful act. The victim is obviously very ill from the start. . . . Diphtheria, however, does not announce itself in any such dramatic manner. It begins after an incubation period of from one to five days, with a little tretfulness and lassitude. The favorite games and toys no longer interest. The appetite is capricious, but since swallowing is performed without difficulty, and since there is no change in the voice nor complaint of sore throat, the possibility of diphtheria is not suspected by the average parent. The mouth temperature at this stage is only slightly above normal, rarely more than 100 or 101 F., and this serves further to allay suspicion. The diagonsis of diphtheria should not be discarded, however, because the temperature is higher than 101 F.—Holmes, William H.: *Bacillary and Bacterial Infection—Acute and Chronic*, New York, Macmillan Company, 1940.

Epitome of Indian Medical Literature

IND. MED. GAZ., FEB. 1941.

(1) Chaudhuri reports the case of a woman apparently with Grave's constitution with typical signs of primary Grave's disease. Her doctor gave her iodine and 'thyroid tablets. She felt worse from day to day, lost weight progressively, and the goitre grew bigger. The author draws attention to the need for great caution in prescribing drugs like iodine and thyroid extract in such cases as these may serve as exciting causes of Grave's disease in susceptible persons. The author treated the case with bed-rest, potassium iodide in small doses phenobarbitone and high caloric diet.

(2) Rao and Ganapathi of the Haffkine Institute give the results of their investigation into the therapeutic value of sulphathiazole in experimental B. typhosum, V. cholerae and fixed virus infection in mice and vaccinia virus infection in rabbits. They conclude that the drug has appreciable therapeutic effect in B. typhosis infection but very little in other infections referred to.

CAL. MED. JR., FEB. 1941.

(3) A case of adenomyosis of the anterior wall of the body of the uterus with histological picture is reported by Mukharji. A correlation between the clinical features and the pathological findings has also been attempted in the case recorded. No evidence of gross inflammatory changes was observed in the uterus or its appendages, to support the inflammatory stimulus in the present case. The clinical features, e.g., intense acquired dysmenorrhoea, excessive bleeding in the form of menorrhagia and intermenstrual bleeding typical of the condition, was present in this case. But the history of dysmenorrhoea in the present case is of very short duration being only for one year. The average age of appearance of severe dysmenorrhoea varies between 28·8 years (Counseller) to 40 years (Jeffcoate and Potter). The general hypertrophy of uterus including both musculature and endometrium and the associated tenderness of pelvicorgans are possibly due to excessive follicular activity which is more or less a constant feature of the condition, and is regarded as the cause of endometriosis. A review of literature has been made regarding the pathogenesis of endometriosis in general. The uterine glands normally stop at the endometriomyometrial junction, but the interstitial cells do not. They penetrate amongst the uterine muscle bundles in smaller and smaller ramifications like the roots of a plant, invasion varying in different individuals. Minor degrees of penetration are of no clinical significance. The importance of routine histological examination in all cases of uterine fibroma is stressed.

(4) From the pharmacological and clinical consideration Mojumdar concludes that:

(1) Sulphapyridine is an useful drug, so far as pneumonia, bacterial endocarditis, gonorrhoea, pneumococcal meningitis are concerned, provided—(a) it is administered in full dosages and early in the disease; (b) under constant

supervision of a medical man who can recognise and deal with the toxic symptoms; (c) the treatment carried on for the period necessary for the body to develop sufficient antibodies to overcome the infection.

The precise method of action being known, its bactericidal power should be supplemented by active or passive immunity by type specific serum or vaccine. Vaccine with sulphapyridine should on theoretical basis yield good results.

(2) In all cases the tablets should be crushed and taken with a good draught of water, so that the drug can be absorbed in comparatively bigger quantity. As the drug is more absorbed in 'fasted' stomach, a few doses should be tried on empty stomach.

(3) Wherever possible, the treatment should be controlled by: (a) systematic leucocytic counts. (b) the concentration of the drug in blood. (c) four-hourly recording of the temperature, pulse, and respiration and at least two visits a day by the attending physician.

(4) If the drug is going to be useful, the signs of remission of the disease will be manifested very soon. In any case, no improvement occurring within three days, the drug should be stopped.

(5) For vomiting, sodi bi carb shall never be used. Tr. opii or barbiturates are of value.

(6) The same precautions as in sulphanilamide therapy should be observed, i.e., sulphur containing food, aperients (epsom, glaubers salts, magsulph) or preparations containing amidopyrin, viz. phenacitin, phenazon or aspirin, should be avoided.

(7) It should be stopped in following cases:

(a) neutropenia or frank agranulocytosis.

(b) mild to severe anæmias, including acute hemolytic anæmia. It is not uncommon to find a hyperleucocytosis with these conditions.

(c) renal irritation with hematuria and hepatitis,

(d) dermatitis, angioneurotic edema, purpura, urticaria, and morbilliform rashes. Whether or not the drug should be stopped in these cases is controversial, but its continuance should be weighed against the severity of the illness.

(e) but it is to be made a rule to instruct the patient or relatives to stop the drug and inform the physician if one of the following symptoms arise; headache, weakness, vomiting, rapid deep breathing, chills, fever, jaundice or sore throat.

(8) It should not be employed in colds, grippes and numerous other infections, unless the indication is definite. It can be said that we not only have a widely used drug, but also a frequently abused preparation.

The only real contra-indication to the administration of the derivatives is a previous history of drug toxicity and in all cases a history of previous sulphanilamide therapy should be taken as "the patient who has suffered a toxic reaction from sulphanilamide or its derivatives may develop another more severe reaction if the drug is administered a second time." (Long and Bliss).

MED. BULL., 15TH MAR. 1941

MED. DIG., FEB. 1941

(5) Krishna Rau and Sitarama Rao in the course of their article write that:

Posture:—In cold temperate regions most of the routine activities are carried on several feet above the floor thereby necessitating the use of elaborate pieces of furniture and tapestry such as carpets, curtains, etc. In India however the conditions are different. People sit on the floor. Sitting on the floor differs from sitting on a chair. Special stress may be laid on the distinctive and peculiar squatting posture assumed by Indians during defecation or to put it euphemistically during functions involving easing and discharging of waste products. The posture approximates the thighs with the anterior abdominal wall and effectively constricts and narrows the weak points. It is an effective safeguard in preventing protrusions of any kind during acts involving strain and pressure.

Constipation is another potent predisposing factor in the causation of hernia. Concentrated fleshy foods render one more costive than bulky foods such as cereals, pulses and cheap leafy vegetables which constitute the staple diet of Indians belonging to the poorer classes.

Habiliments: Shoes are essential in cold countries. Dictates of fashion which are readily taken to by women of the lower strata of society require the wearing of high heeled shoes. The wearing of high heels disturbs the poise and equipoise of the body in the standing posture. The line of gravity in a person assuming the standing posture passes through the external acoustic meatus, in front of the atlanto-occipital articulation through the convexity of the curves of the spinal column, behind the axis of rotation of the hipjoint and finally in front of the axes of the knee and ankle joints. The effect of constant use of high heels is extension of the ankle joint and shortening of the calf muscles. Extensors become overstretched and dorsiflexion becomes impaired. The greater proportion of the weight of the body is borne by the anterior segment of the foot comprising the metatarsals. The disturbance in the balance may be overcome in one of two ways, either by a slight flexion at the knee joint during walking combined with a backward inclination of the femur or by extension at the knee along with an exaggerated lumbar lordosis simulating pregnancy which throws greater strain on the anterior abdominal wall. The use of corsets and other mechanical agents designed to produce the wasp waist do not seem to be so common nowadays as they were in the Victorian area.

Habits: It has been definitely established that asthenic and hyposthenic types are more prone to visceroptosis and hernia. Whether such types are more frequent in Western countries is just a matter of suggestion and speculation.

From the foregoing observations, it will be seen that the factors lessening the incidence of hernia are in some way associated with and to be attributed more to the environmental customs and habits peculiar to the tropics than to any radical difference in the anatomy of the region.

PATNA JR. OF MED., JAN. 1941

(6) The author is of the view that there is a definite deficiency of vitamin C in patients suffering from peptic ulcer. These patients are in a subscorbutic state. The recovery of these patients is hastened if an adequate amount of vitamin C is provided along with the routine treatment.

ANTISEPTIC, FEB. 1941

This is a Special Number on infectious diseases. Chatterji deals with infectious diseases in general from the points of view of legislation and health education. Mallayya deals with recent advances in the treatment of infectious diseases, and mentions prominently the sulphanilamide group of drugs. Seshadrinathan writes about immunization mentioning the uses and limitations of lymph vaccine, antirabitic vaccine, T. A. B. vaccine, B. C. G. vaccine and anticholera vaccine, and concludes that 'prophylactic immunization is mainly dependent upon the tissue response to the stimulus of the antigen'. Raman Pillai deals with resistance to infections by means of a balanced diet and argues in favour of this method of strengthening

classifies the position of sulphapyridine (M. and B. 693) in the treatment of infectious diseases, while Somerville and others deal with surgical infections. Tarsi makes a very useful contribution on acute infectious diseases in pregnancy, and Desai on infectious diseases in children.

JR. OF SOUTH INDIAN MEDICINE, FEB. 1941

Special Journals

IND. JR. OF MED. RESEARCH, JAN. 1941

There are 23 contributions of varied interest. Mazumdar emphasizes the value of shark-liver oil as a substitute for cod-liver oil. Kirwan and others point out that nearly 3% of patients attending the eye infirmary, Calcutta, were found to be suffering from eye conditions due to vitamin A deficiency. Keratomalacia in children up to 5 years of age forms 71·9% of all such cases. Parenteral administration of vitamin A in cases of keratomalacia is very effective in curing the condition.

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE, VOL. 1, NO. 1, MARCH 1941

This is issued under the auspices of the Indian Institute for Medical Research, Calcutta and is more or less on the model of its senior contemporary, the Indian Journal of Medical Research issued under the auspices of the Indian Research Fund Association. The first number contains 16 articles of great research value. Banerjee stresses on the need for assaying the nutritive value of *cooked food-stuffs* instead of the *purchased food-stuffs* in order to arrive at a proper estimate of the nutritive value of diet of a particular community or person. Dasgupta and Chowdhury announce the discovery of a new butyric acid bacterium from old tamarind and give an account of its morphology and biochemical properties. Das Gupta and Guha point out that ascorbic acid has got a stimulating effect on the growth of certain fungi in a concentration of 1 50,000, and inhibitory effect in a concentration of 1 10,000; and inhibitory effect on certain bacteria in a concentration of 1 50,000. Banerji, Sen and Guha point out that there is diminution of the excretion of ascorbic acid in certain infected conditions. It is probable that the disappearance of some of the vitamin is due to its oxidation by increased metabolism caused by infections. It appears, however, from the present results that some of the vitamin is excreted in a combined state thereby causing a diminution in the observed excretion of free ascorbic acid. In the estimation of ascorbic acid, dehydro-ascorbic acid and combined ascorbic acid described in this paper, ascorbic acid oxidase was always used in order to make the chemical method of determination of ascorbic acid more specific. The view has been advanced from this laboratory that vitamin C may have a detoxicating function both in normal and in infected conditions by combining with toxins or toxic metabolites and eliminating them. The results described in this paper would appear to lend support to this view in reference to acute pulmonary tuberculosis and in this condition therefore and presumably in other infected conditions, the administration of massive doses of ascorbic acid is likely to give beneficial results.

Gosh and others contribute a very useful article on enzymes in snake venom. Baidyanath Gosh points out that the detoxicating capacity of ascorbic acid is selective, inorganic poisons being in general unaffected by it.

ABSTRACTS

DOSAGE OF SULPHANILAMIDE DERIVATIVES FOR CHILDREN:

It is agreed, writes Martin Hynes in *The Lancet*, February, 1940, that sulphonamide therapy gives the best results when the concentration of the drug in the blood is 4-10 mg. per 100 cc. It is therefore important to know what dosage will produce this concentration. This question has been investigated in children, of whom 64 received sulphapyridine, 13 sulphanilamide and 4 proseptasine. The concentration of the drug in the blood was estimated 24 or more hours from the beginning of the course, by which time it is maximal. After the first day of administration the concentration does not vary from hour to hour even though the drug is given only 6-hourly.

The results suggest that the therapeutic concentration of the free drug of over 4 mg. per 100 cc. will as a rule be attained if the dosage follows the scheme shown in the accompanying table, which differs only slightly from that of Evans and Gaisford (1938).

Age		Dose (0·5 Gm. tab.)		Dose in 24 hours (Gm.)
0-3 months	...	¼ 4-hourly	...	0·57
3-6 months	...	½ 6-hourly	...	1·0
6-18 months	...	½ 4-hourly	...	1·5
1½-4 years	...	1 6-hourly	...	2·0
4-8 years	...	1 4-hourly	...	3·0
8-12 years	...	2 6-hourly	...	4·0
Adult	...	2 4-hourly	...	6·0

The initial dose should be twice as big as the subsequent doses shown.

The recommended dose will give widely different concentrations in the blood in different children of the same age and weight. So insoluble a drug naturally shows great variation in absorption; the rate of its excretion depends on the output of urine; if there is much vomiting, the amount of absorption becomes even more uncertain. The sulphanilamide derivatives therefore, can be used to the greatest advantage only if the dose is controlled by estimating their concentration in the blood

TREATMENT OF CHRONIC CERVICITIS:

William T. Black, writes in the "*Archives of Physical Therapy*" that:

1. A pelvic examination is incomplete without inspection of the cervix by one who is familiar with the gross pathologic processes of the cervix.

2. Every erosion of the cervix should be regarded as a potential carcinoma. Biopsies should be made in all suspicious case.

3. Superiority of electrosurgery has been recognized to an extent as to have relegated plastic surgery to the background, yet the latter still has a definite place in selected cases. Extensive lacerations in chronic cervicitis are best treated by operation. For lacerations less than 1½ cm. in length cauterization is most suitable; the result is equally good and there is less danger of malignancy following this procedure.

4. Amputation of the cervix should not be performed during the child-bearing age, but in the elderly an amputation is indicated in the presence of a badly diseased cervix with

multiple lacerations. Stuemdorf's, or a modifide Schroder operation, is preferable for young women with an elongated hypertrophied cervix.

5. In chronic cervicitis limited to the endocervix, small cautery points should be used. Chronic interstitial cervicitis with moderate hypertrophy and only a few cysts should be treated by deep lineal burns and puncture of the remaining cysts with a cautery point.

6. For a large, cystic, degenerated cervix with extensive hyperplasia, ionization is preferable. Cysts not removed by this method may be punctured with a cautery point. If a laceration of moderate degree is present, this should be cauterized.

7. Postoperative care is most important following electrosurgery to prevent atresia or stenosis.

8. Electrosurgery should not be undertaken during an acute infectious process. If the uterus is retroverted, and especially if the cervical canal is patent, the danger of complications is increased. Unless imperatively indicated, the uterus should not be invaded at operation, as dilation and curetage of the uterus materially add to the possibility of infection.

9. Because of the variety of bacteria present in chronic cervicitis, the patient should not be led to believe that there is no danger in either electrosurgery or plastic surgery. A small percentage of patients may succumb from an infection; a larger number are gravely ill for weeks. Others are never completely cured of residual disease following acute pelvic infection.

10. The cervix has remarkable recuperative powers, and if good surgical judgment is exercised in the selection of the treatment of chronic cervicitis, excellent results may be anticipated.

THE USE OF SEDATIVE AGENTS :

Untoward reactions associated with confusion, lassitude, headache, and accentuation of existing emotional states may occur after the administration of any sedative drug. Also, it is not rare to observe that confusion and psychotic tendencies occur after the administration of sedative agents to patients suffering from congestive heart failure, infectious diseases, and renal or hepatic deficiencies. It should be stressed therefore that sedation should not be initiated until after careful analysis of the patient's condition has been made; then an appropriate drug should be chosen to accomplish a definite purpose.

The barbiturates offer ease of administration and are supposed to lack toxicity. Actually, they are not so free of danger as it is popularly supposed. Certain individuals will crave and demand the oblivion they produce and habituation with large dosages may cause irreparable damage to the brain.

Response to the administration of barbiturates in sedative doses is variable: excitement, inebriation and even delirium may precede the hypnotic effect. In organic disease of the brain, such as cerebral sclerosis, tumour, or toxic changes, barbiturates frequently produce adverse effects and patients become more difficult to control than ever before.

Except for the duration of their effect, the barbiturates are strikingly alike. The following, all of which are derivatives of malonyl urea, are listed according to their length of action.

Long Action—
phenobarbital
barbital

Intermediate Action
neonal
dial
ipral sodium

Short Action—
pernoston
pentobarbital sodium:
nembutal
seconal
phanodorn
ortal sodium

allurate
nostal
amytal
sandeptal

Ultrashort Action—
evipal soluble
pentothal sodium

The sedative derivatives of barbituric acid are valuable in the treatment of situational insomnias, in preanaesthetic medication, and in depressing motor activity. Pharmacologic evidence suggests that pheno-barbital is more effective in depressing motor activity; in fact, administration of some of the barbiturates of transient effect, such as nembutal, may cause agitated patients to become more restless and confused than they were before they received the drug. Barbiturates act weakly in the relief of pain, but combinations of them with some analgesic agents are synergistic.

To-day, some of the older sedative agents have fallen into undeserved disuse. Chloral hydrate is one of the most relative of these, and is especially useful in the management of agitated and conclusive states. Administration of this drug may be carried out by mouth of rectum, in amounts up to 45 grs. (3 Gm.) Fifteen grains (1 Gm.) is an ordinary dose. Generally, there are no depressant after-effects. Tolerance and cumulative effects are minimal. There is no good clinical evidence that chloral hydrate will cause cardiac depression, and the dangers of administering the drug in the presence of cardiac disease have been exaggerated.

Paraldehyde is less certain and less powerful in its action than is chloral hydrate. The dosage is 3 to 15 cc. The acute toxicity of the drug is low, but formation of habit is not infrequent and presents the phenomena of chronic alcoholism.

The bromides are much in disrepute at present, but they ought not to be discarded. They tend to produce mental calm and apathy, but do not enforce sleep. In addition, they possess some anticonvulsant action.

Carbromal, sedormid, and bromural are carbamides which act rather feebly, and which, like the bromides, are suitable mainly for mild nervous insomnias. Sulphonmethane and sulphonethylmethane are powerful drugs. They act slowly, cause considerable after-depression and cumulative effect and, occasionally, fatal poisoning in therapeutic dosages. The most ancient and powerful hypnotic agent, morphine, is not used for sedative purposes simply because of the danger of addiction. In acute maniacal conditions, the combination of morphine and scopolamine may be of great value in controlling the patient (Proceedings of the Mayo Clinic, Aug., 1940)

NOTICE

The members are requested, while remitting their subscriptions to the Treasurer, to write their names and addresses in BLOCK LETTERS. The Provincial Secretaries and the Branch Secretaries are also requested to follow the same procedure.

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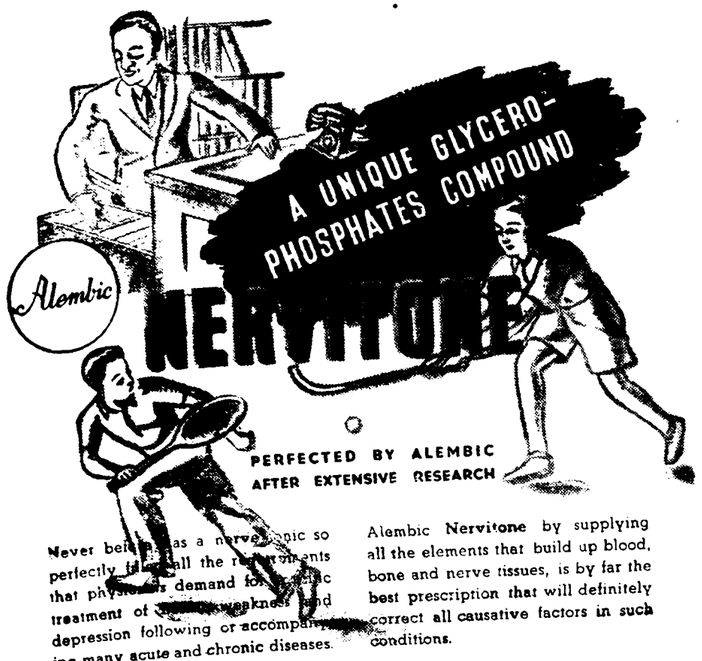

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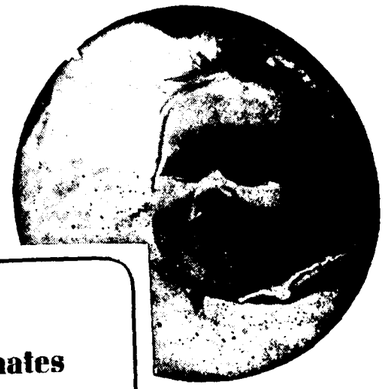

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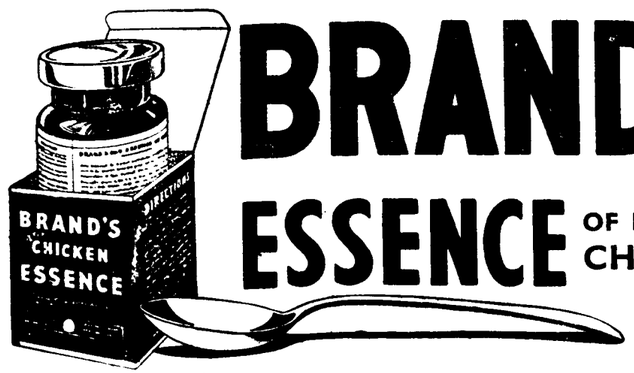

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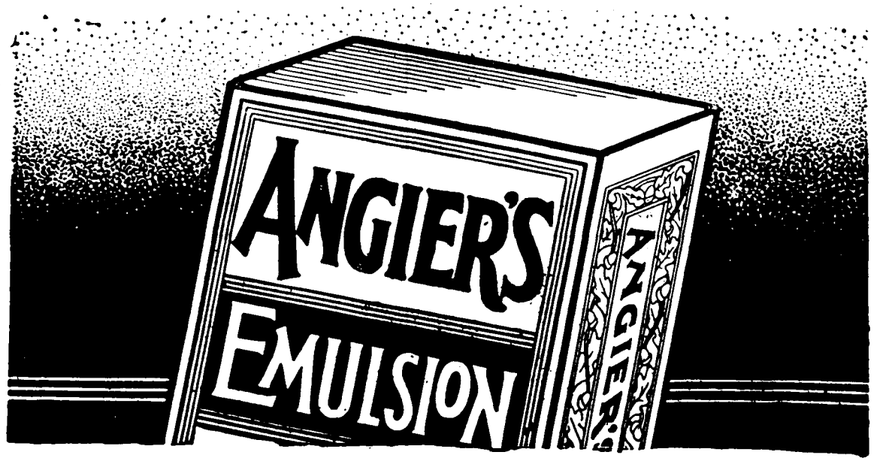

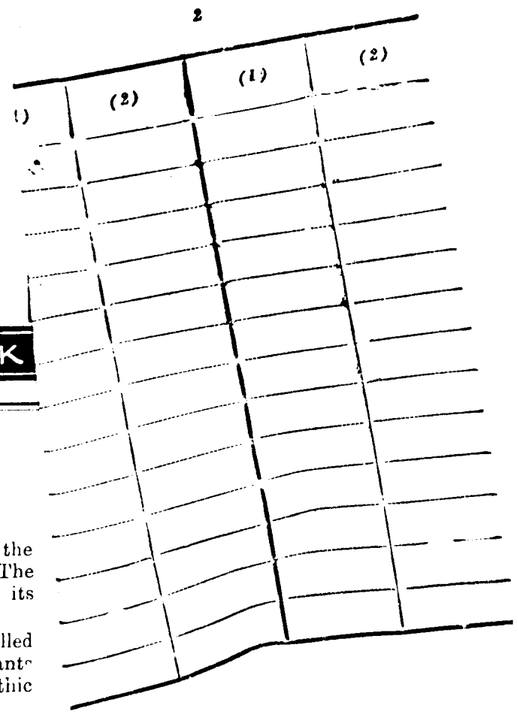

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