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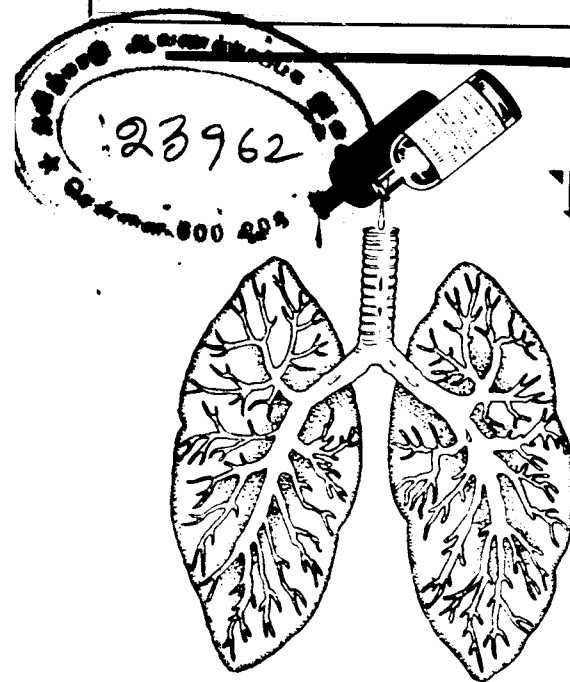
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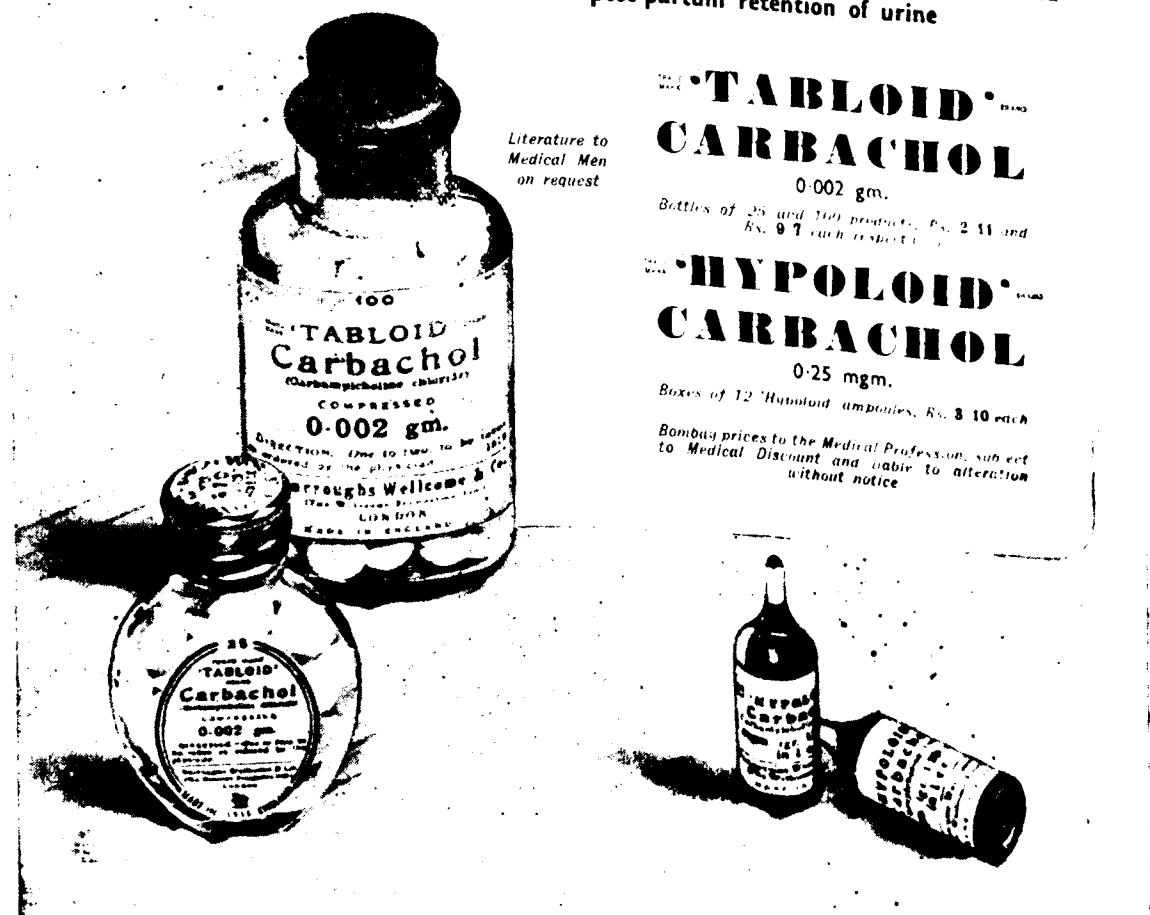
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ADDRESSES AND ARTICLES

Infantile Biliary Cirrhosis

(5)

The Role of Castor Oil

● Dr. S. Balasundaram, Director, Erhlich's Laboratory, Madras

The castor plant is grown all over and is quite common and even grows wild in the jungles of India. It is cultivated especially in Madras, Bengal and Bombay. The oil extracted from the seeds of the plant has been used as a purgative from time immemorial in our country. A habitual administration of this oil to a child from the very day of its birth is a wide-spread practice in Indian households. Whether this practice of administering this oil is good or bad we will discuss later. But it is well known that this practice is prevalent. Tirumurti suggested to me that the practice of administering a fatty oil practically everyday or on alternate days to small children may be responsible to a certain extent for the infantile cirrhosis, and it was at his suggestion that I took up this work of investigating into the probability of a habitual administration of the oil being a causative factor of infantile biliary cirrhosis in children.

The castor plant is known to grow in two forms: A perennial bushy plant with large red seeds yielding about 40 % of oil and the other a much smaller annual shrub with small grey seeds having brown spots and yielding 37 % of oil. On the authority of C. M. John, Oil-seeds Specialist, Coimbatore, I may state that though the Agricultural Department has collected as many as 100 types of castors for crop-breeding work yet the varieties have been found to fall within two main groups viz., the big or small seeds which, according to the specialist, are the two main types of castor seeds commercially recognised. He says it has also been found difficult by him to fix the numerous types, as castor is mostly a cross fertilized crop and the material available is rather heterogenous in its genetic constitution. On his advice, I confined myself to the study of these two broad types. Samples of castor seeds were obtained by me from Agricultural Demonstrators of Anantapur, Cuddapah, Kurnool, Salem, Pollachi, and Virudhunagar, which were the places recommended by the Oil-seeds Specialist, as representing the characteristic South Indian types. Seeds were also obtained from

Hyderabad State, which is an important castor producing tract in India. Though oil from large seed varieties is used mostly for lighting, lubricating etc., and the small seed variety is used for medicinal purpose only yet, I have taken up the large seed variety also for my study, as I got information that in some places, due to the non-availability of small seeds, even the oil from big seeds is used for medicinal purposes.

Generally the fixed oil obtained from the seeds is about 45 %, proteids about 20 %, starch, mucilage sugar and ash forming the remainder. The oil contains 1. RICINOLIN which is a mixture of glycerides of ricinolic acids and isoricinolic acids, the purgative principles 2. TRISTHARIN 3. Glycerides of dihydroxy Stearic acid and 4. REICIN, an albuminoid poisonous body. Tirumurti and many others like him are doubting whether this albuminoid poisonous body is in any way responsible for a toxic action on the liver of children. If that were so, the question arises whether is it possible that only certain varieties of castor oil prepared in a certain way contain a large proportion of this toxin or is it right for us to assume that almost every sample of castor oil contains this toxin to a sufficient degree to cause damage to the liver, though not by a single dose at least by habitual administration as is done in India. These were matters which came for investigation by me.

According to the specialist, the oil from large seed varieties is largely used for burning purposes for which the seeds are partially roasted to coagulate the albumin and liquefy the oil and then pressed in ordinary mill or crushed and boiled with water. The roasting process is sometimes omitted. In both these cases the colouring matter of the shell or seed coat and other impurities give the oil a dark colour and if the roasting process is carried too far an acrid odour is developed. By carefully shelling the seeds and rejecting the impurities a high grade oil suitable for medicinal purposes is obtained. The small seed variety is supposed to yield the best product and therefore employed in preparing oil for medicinal purposes. As mentioned before, castor seeds were obtained from all the places mentioned above and oil has been extracted from them in my laboratory by several methods of indigenous extraction adopted in Madras Presidency. Three of the main methods of extraction are explained below.

1. The seeds are roasted in pot or pan, pounded in mortar and placed in four times its volume of water which is kept boiling. The mixture is frequently stirred with a wooden spoon. After some time the pot is removed and the oil skimmed off. The residue is allowed to cool and the next day boiled again for the oil. Samples of both large and small seeds from various places were used separately and mixed together to extract samples of oil.

2. The seeds are boiled for two hours in water and dried for 3 days in the sun. They are then husked, pounded and boiled in water till all the oil rise to the surface. Here again mixtures of

For the author's previous articles, vide Vol. 3, No. 11, p. 349 and Vol. 34, No. 2, p. 37; No. 3, p. 64; No. 5, p. 118 of the Journal.—Ed.

both varieties of seeds and individual varieties were used to collect specimens.

3. The seed is soaked overnight in water and in the next morning ground up in the ordinary native mill before boiling for the extraction of oil.

These were the methods adopted in my laboratory and are the methods generally adopted in our Presidency. But in some parts of Bengal there is a slight deviation in the actual process which is not of very great importance for our purpose.

The so-called cold drawn oil which is supposed to be best suited for medicinal purposes is obtained in factories as follows. The seeds are first cleaned with hands. They are next placed in a smooth wooden board. One or two strokes are given with a wooden mallet to break the seeds. These are then winnowed and dried in the sun. The kernels are next broken in a crushing machine, put in small canvass or gunny bags and pressed in a hand machine. The oil is collected in large galvanized iron vats and bleached by exposure to sun. During this time the sediment is precipitated. It is next boiled to evaporate the remaining moisture. Vegetable charcoal is added and the oil filtered thrice. By this process the purest quality of oil is obtained. This oil is said to be cold drawn because the oil is extracted by crushing and not by roasting the seeds, or boiling with water. Even a cold-drawn oil has to be boiled or treated with super heated steam after extraction as mentioned above to remove moisture. A sample of such a cold-drawn oil was obtained by me from the Madras Medical Stores for comparison with the other oils. Altogether 32 samples of oil were collected for study. The content of ricinolic acid which is the chief purgative principle of the oil is about 80% of the weight of the oil. On the authority of the Government Analyst (Guindy), the Chemist of the Kerala Soap Institute (Calicut) and the Oil-seeds Specialist (Coimbatore), I may state that a definite process for the direct determination of the content of ricinolic acid is not known. But much information can be obtained by the optical rotation of castor oil or its fatty acids which is very largely due to the presence of ricinolic acid.

The determination of acetyl value of the oil is another method which is very useful as a measure of the content of the ricinolic acid. The value indicates the number of milligrams of potassium hydroxide required for the neutralisation of the acetic acid obtained on saponifying one gram of acetylated oil. The acetyl value of castor oil is about 150. So, if on an examination a sample is found to give a value appreciably below 150, it is to be looked upon with suspicion. This value gives a measure of the hydroxyl groups present. The effect of a small proportion of dihydroxy-stearic acid could probably be neglected. But any of these

experiments mentioned above would only give us an idea about the content of fatty acids in the oil or any adulterant that has been used. The content of the fatty acids in the oil is not itself of great significance as generally there is no variation, and if there be any, it is only of minor degree which may mean only less of purgative action and not of any other great significance. As for the detection of adulterants it is not necessary to adopt such difficult methods. Castor oil being a thick oil having nearly the highest specific gravity among the vegetable oils, any adulterant with this oil can be easily recognised by the immediate change in the specific gravity. So it was found that an estimate of the sp. gr. of the oil prepared in my laboratory and of the samples obtained from the market with the cold-drawn oil obtained from the Government Medical Stores as a control, was quite enough to detect at one stroke that the samples obtained from the market (which are generally used for children) did not contain any adulterant and that the ricinolic acid content did not vary much from sample to sample. But in this connection one important thing we have to remember is that being a thick fatty oil, a habitual administration is bound to produce the same effect on the liver of children as an excess of fat in their diet. Such an effect is found to be greater in children with hyperactive endocrine system who cannot bear even the fat of milk as I have described in my previous article in the *Journal*. Hence an administration of this oil to animals with a view to note the effect of such habitual administration on them was not tried in my laboratory as I felt that even if any ill effects are produced they cannot be attributed to the constituents in the oil but only to the bulk of indigestible fat. It was my endeavour to find out whether castor oil apart from the fact of its being a thick fatty oil contains any chemical toxins which can produce a particular kind of lesion in the liver. This question cannot be answered by the ricinolic acid of the oil or any other fatty substance. The only other chemical substance in the oil capable of producing harm is the albuminous toxoid resin which is found to be present to an appreciable degree in the seeds. But is it present in the oil at all and if so to what extent is the crucial question. The Oil Seeds Specialist is of opinion that the cold-drawn castor oil under the conditions in which it is prepared cannot contain this toxin as it does not pass into the oil. But in cases where heat is applied before expression as in the indigenous methods adopted the acrid principle may pass on to the oil to some extent. But even in these oils, the refining and deodourising processes might be considered sufficient to remove this principle as it is easily coagulated by heat. But the doubt is there. So investigations were carried out on the following samples to find out any trace of this resin present in them.

The Assessment of Progress in Pulmonary Tuberculosis*

● Dr. Shri Nath Singh, M.S.M.F., Police Medical Officer, Kumaon Division, Naini Tal

A proper understanding of this subject is of paramount importance.

A clear distinction must be made between those criteria which indicate reduction or disappearance of toxæmia and those of a healing or healed lesion. A healed lesion justifies completion of the treatment but not necessarily of the management of the patient. Absence of toxæmia *does not* indicate the cessation of treatment.

A great majority of relapses can be prevented if the above points are steadily borne in mind. It has now been established that the majority of relapses, for which pulmonary tuberculosis is so notorious, are due to the cessation of treatment when the patient regains apparent, though not real, health in consequence of the lesion becoming either inactive or at the most partially healed.

For gauging the progress of the patient the undermentioned factors, namely, temperature, pulse, weight, amount of sputum, presence of tubercle bacilli, radiological appearance, leucocytic picture, erythrocyte sedimentation rate, menstrual history, night sweats, voice and blood pressure, should be correctly evaluated as summed up below.

TEMPERATURE

Sir James Kingston Fowler's dictum, "that the height of fever in pulmonary tuberculosis is the index of the activity of the disease" may be taken as only roughly correct since of late, it has been recognised that "the height of fever is often no guide to the severity of the disease or the outlook for the patient." Persistent high fever often subsides within a few weeks of complete rest or within a few days of a successful therapeutic pneumothorax or phrenic interruption.

A return of temperature to normal is of good significance not so much as indicating regression of the lesion as of reduction in toxæmia and con-

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

the habitual administration of a thick vegetable fatty oil like the castor may do harm by the quantity of fat the liver is made to tackle.

I am greatly indebted to the oil-seeds Specialist, (Coimbatore), the Government Analyst (King Institute, Guindy) and the Chemist, Kerala Soap Institute (Calicut) who have been very kind to supply me with valuable information on the subject and also the various Agricultural Demonstrators who have been kind enough to supply me typical samples of seeds grown in their areas.

I Serial No.	II Place from which seed was obtained.	III Variety according to size.	IV Variety according to method of cultivation.	V Method of Extraction of oil.
1	Salem	Small	Not known	Method 1
2	"	"	Irrigated	"
3	"	"	Not known	2
4	"	Big	Irrigated	"
5	"	"	Rainfed	"
6	"	"	"	1
7	"	"	Irrigated	"
8	"	"	Rainfed	2
9	Sattur	Small	Not known	1
10	"	"	"	2
11	"	Big	"	1
12	"	"	"	2
13	Hyderabad	Small	"	1
14	"	"	"	2
15	Tindivanam	"	"	1
16	"	"	"	2
17	"	Big	"	1
18	"	"	"	2
19	"	Big & Small	"	2
20	Pollachi	Big	Unirrigated	1
21	"	"	Irrigated	1
22	"	Big & Small	Not known	2
23	"	Small	Vedikottai-muthu	1
24	"	"	"	2
25	Kurnool	"	Not known	1
26	"	"	"	2
27	Mixed from all places	"	"	1
28	"	"	"	2
29	"	Big & Small	"	1
30	"	"	"	2
31	"	Big	"	1
32	"	"	"	2

N.B.—Since the 3rd method was not possible to be adopted in most of the samples no mention has been made of it in this Table.

Market samples like the Morton's Castor oil, Swastik brand oil, Bengal Chemical's and Allenburry's were also tested with the above samples for comparison, and throughout the test cold-drawn oil obtained from the Madras Medical Stores was used as control.

If castor is treated with hot alcohol with or without previous admixture of lime, a solution results which on cooling deposits CASTORINE in crystals from the mother-liquor of which the resin may be obtained by the addition of water. The resin is nearly black, bitter and acrid. All the samples of castor oil prepared in my laboratory were found to be free from this resin and hence the conclusion had to be arrived at that the boiling process usually adopted at the final stages of the extraction of oil samples removes all the albuminous matter by precipitation.

Conclusion: Castor oil prepared in households or obtained from the market does not contain any resin, and so, such poisoning of the liver of children with this substance in the oil is too remote. But

sequent breaking of the vicious circle which is all-important in controlling the disease.

A diurnal difference of more than one degree fahrenheit in temperature, even if the maximum temperature in the day is 98.4° F., is unusual and may be an evidence of toxæmia.

A continuous high fever is of serious import and suggests miliary tuberculosis or a general spread of the disease.

An inverse temperature, i. e., a temperature which is higher in the morning and lower in the evening, is also of bad significance as it indicates the defensive mechanism of the body is so over-powered by the tuberculous toxæmia that the body cannot cope with it.

The main point to emphasize, however, is that sometimes a persistent normal temperature is found quite early in the successful treatment of phthisis but this is not a criterion of healing and must not be considered a reason for allowing the patient to get up.

PULSE

In active pulmonary tuberculosis the pulse is usually disproportionately rapid especially in ambulant patients. Any pulse rate which in an a-febrile male tuberculous patient is consistently 90 or over, and in an a-febrile female tuberculous patient over 95 per minute, in the absence of other causes of the rapidity of pulse such as displaced mediastinum or mild hyperthyroidism etc., indicates activity of the lesion. A lesion may, however, be active and occasionally even progressive, with normal pulse while the patient is in bed.

A drop in the pulse rate must be regarded as good evidence of regression, particularly if the rate returns to normal and persists at this level.

WEIGHT

It is not at all unusual for a patient to gain weight while at rest in bed with an extensive mildly progressive disease; but loss of weight while the patient is in bed, in the absence of non-specific causes for the loss of weight or failure to gain weight, such as lack of teeth, badly fitting dentures, psychological factors causing lack of appetite, diarrhoea and in the early stages of gold therapy, is evidence of severe toxæmia.

A gain in weight is on the whole a favourable sign and it is of truer significance if it occurs on an ordinary well balanced diet rather than on the one termed 'stuffing'.

An unexplained loss of weight, amounting to more than 10% of the body weight, if it occurs over a comparatively short period of weeks or months in a chronic case of pulmonary tuberculosis when the disease has apparently been arrested, is of grave significance and is often the first symptom of renewed activity.

AMOUNT OF SPUTUM

Reduction in the amount of sputum is a valuable sign of improvement; but absence of sputum is no criterion of healing, nor is the persistence of some sputum evidence of the persistence of the activity, because expectoration may result from associated conditions, such as bronchitis or bronchiectasis, resulting from fibrosis due to healing of the lesion.

TUBERCLE BACILLI

The absence of tubercle bacilli should be regarded as the most important criterion of progress and of completion of treatment.

The presence of bacilli is indicative of an unhealed or incompletely healed lesion, which will usually be active though in some cases it may be latent and the patient may be in a state of apparent good health.

Three negative examinations of purulent smear by a technician should be followed by culture. This, if found negative, should be followed by investigation of the gastric contents, as it has now been established that the gastric contents continue to contain tubercle bacilli as long as the lesion is pathologically active and needs treatment while the sputum often becomes free of tubercle bacilli long before the actual healing. It must be remembered that the residuum from the very bottom of the stomach should be aspirated for examination. A negative result is of much greater significance when obtained after the investigation has been conducted on the combined gastric contents collected on two or three successive days. Repeated negative animal inoculation of gastric contents at monthly intervals are the most valuable indication of healing.

RADIOLOGICAL APPEARANCE

It is important that in an average case the chest should be X-rayed at least once every three months and each time the technique employed should be exactly similar to enable correct comparison of alterations in shadows. The plate should be taken at least 5 or 6 feet distant with a high milliamperage and an exposure time of only a small fraction of a second.

Regression of the lesion can be recognised by the shrinking of the shadows. They should become more and more sharply defined until they assume a fairly definite contour. Complete disappearance of shadows, though rare, does take place and is evidence of healing by absorption. Retraction of the mediastinum and trachea is evidence of fibrosis and therefore of healing; but along with manifestation of fibrosis and calcification, there can be evidence of fresh infiltration and this should always be borne in mind.

Persistence of a cavity is definitely of bad augury, as a cavity is a potent source of bronchogenic dissemination of the disease and is often the cause of severe haemoptysis. 'Follow up' statistics have shown that the expectation of life is greatly diminished by the presence of cavities, varying indirectly with the size of the cavity.

Sometimes due to the newly developed fibrous tissue, cavities become hidden and in such cases lateral films, double exposure technique or tomography, may be necessary to assess progress.

Arrest of the lesion can, however, be obtained even though hardly any change is seen in the skiagram.

THE LEUCOCYTIC PICTURE

According to Cunningham and Sabin, with whom many investigators agree, the monocyte and lymphocyte in a normal man are in the proportion of 3 to 10. They think that an increase in the proportion of the monocytes is evidence of dissemination of the disease whereas an increase in the lymphocyte proportion is evidence of healing.

According to Medlar the monocyte is the cell which is active both in the forming of primary tubercles as also in the repair of the tuberculous lesion. The polymorphonuclear cell is responsible for the formation of the tuberculous abscess while the lymphocyte is prominent only when the lesion is in the state of healing.

But, withal, a drop in the number of neutrophils to about 5,000 per cubic mm., or a rise of lymphocyte to over 2,000 cubic mm is a favourable sign and a normal differential count in the presence of other favourable findings strongly points to the complete healing of the lesion.

ERYTHROCYTE SEDIMENTATION RATE (E.S.R.)

A gradual drop in the rate, estimated at a regular interval of every four weeks or so, is a reliable indication of reduction in toxæmia. A gradual drop to a normal figure and continuation there is good evidence of regression of the lesion, but a normal erythrocyte sedimentation rate may be found long before complete healing.

A rise in E.S.R. after it has been normal for sometime usually indicates exacerbation or extension of a healing lesion. It can also be due to non-specific causes, such as pleurisy, nasal catarrh, development of fluid in pleural cavity in A.P. cases, worry, teeth extraction, etc., and this should always be remembered before drawing conclusions.

MENSTRUAL HISTORY

Amenorrhoea, in the absence of physiological or pelvic pathological causes, is evidence of severe

tuberculous toxæmia. The return of normal menstruation in a tuberculous woman points to reduction in toxæmia.

NIGHT SWEATS

The occurrence of genuine night sweats points to activity or renewed activity of the lesion but the absence does not point to reduction in toxæmia or to regression of the lesion.

VOICE

Improvement in the laryngeal involvement should be considered a favourable sign of improvement.

BLOOD PRESSURE

Blood pressure is apt to be low in active tuberculosis. A return to normal signifies reduction in toxæmia.

SUMMARY

(a) *Reduction in toxæmia*: The criteria of disappearance or reduction in toxæmia are (1) Temperature (2) Pulse rate (3) Weight (4) E.S.R. and (5) Menstruation. Toxæmia is absent if all these are normal while the patient is up and about and doing a normal amount of exercise.

(b) *Healing*: Healing is judged by (1) the disappearance of toxæmia (2) reduction in the amount of sputum (3) disappearance of tubercle bacilli—not only in the sputum but also in the gastric contents as determined by animal inoculation (4) changes in the skiagram, which should include disappearance of cavities, if any and by (5) the leucocytic picture.

The presence of sputum and the radiological shadows in themselves do not weigh against the diagnosis of a healed lesion.

Night sweats, voice and blood pressure in themselves are of minor significance and should be considered in conjunction with other factors for assessment of the progress of the patient.

Our present knowledge of phthisis demands that the above criteria, though rigid, must be adopted for two reasons. firstly, to ensure prevention of dissemination of infection when the patient has been discharged from the institution, and secondly, to prevent relapses which, in the majority of cases, are in reality an acute exacerbation of an incompletely healed lesion.

While the adoption of the criteria postulated above should always be the objective in view, circumstances may compel modification in individual patients and institutions. In such cases, however, the physician must frankly admit to himself that he has not been able to apply the modern scientific criteria.

Snake Venom in Therapeutics*

• Dr. S. A. Subedar, L.C.P.S. (Bombay),
Kutiya, W. Kathiawar

HISTORY

Since the birth of man, snake is regarded with feelings of repulsion and superstitious awe. The serpent, although a traditional symbol of evil, has been associated in the minds of human beings with extraordinary healing powers. These reptiles in ancient times, and even now, are encouraged to inhabit the temples. Many ancient prescriptions contained ingredients made from snake venoms and were extensively used by witches and sorcerers in the middle ages. The use of snake venom dates back to the age of Charak and Sushruta. In *Sushruta Samhita* the soot of burnt snake is mentioned as an efficient remedy for leucoderma. Minute quantities of cobra venom as could be picked up by a needle was used as an injection into the brain after trepanation, and in order to stimulate a collapsing heart. In *Aghodtantra* cobra venom is mentioned as a cure for leprosy. The use of this venom was limited owing to its high toxicity and the danger associated with its preparation. During the times of Pharaohs of Egypt the broth and meat of vipers were employed as remedies in leprosy and elephantiasis. Throughout the entire length of the middle ages two medicines called "Orvictan" and "Therique" were reputed to be most potent preparations against various incurable diseases, and they were made from snake venom.

During the Renaissance in Europe, and even upto the middle of 18th century, the snake venom was reputed as a therapeutic agent. In 1831 Dr. Cayol tried to cure a rabid patient with the bite of a viper, but the patient died. From 1700 to 1830 snake venom lost its reputation as a therapeutic agent. Bertrand perceived the analogy that existed between snake venom and toxins and realised the vaccination of animals. Following this discovery Calmette developed the antivenom serum in the body of animals by repeated injections of continually increasing doses of venom. In homeopathic pharmacœia cobra venom is used against epilepsy, ulcers, gangrene, angina and pneumonia. In 1875 Duges obtained apparent cure of leprosy by an injection of dilute solution of cobra venom.

POISONOUS SNAKES

In order to understand the subject properly a short description of the venomous snakes in India will not be out of place. These belong to two

groups: the viperides and colubrids. In the latter the front-fanged are very dangerous. The vipers are so named because they bear their young alive and have a peculiar formation of upper jaws. Poison fangs are so large that they cannot be accommodated in the mouth. They therefore lie flat and get erected in the act of striking. Each fang has a canal running from the tip to the base connected with venomous glands. When the animal bites, muscular contraction forces the venom into the tissue of the victim. Most of the American poisonous snakes are related to this group.

The dangerous colubrids include cobras, kraits, mamba and Australian snakes. In these the poison fangs are small and fixed, the biting mechanism is therefore less efficient than that of the vipers. But the venom is more toxic.

SNAKE VENOM

The snake venom is a special form of saliva secreted by a gland, analogous to the parotid. Some of the toxic substances of venom are actually present in the snakes' blood. In the fresh state, it is a viscid yellow fluid, slightly acid in reaction, having a specific gravity of 1030 to 1080. When it dries up it loses from 60 p.c. to 80 p.c. of its weight. In the dry state it is in the form of yellow scales which are readily soluble and the activity of the venom can be preserved for years. In solution, however, it soon deteriorates. All snake venoms are composed of globulin and albumose in varying proportions and in varying toxicity.

COMPOSITION OF SNAKE VENOM

These are composed of several active principles in different proportions. *Neurotoxins*: these paralyse the muscles of respiration and this is the most frequent cause of death in persons bitten by colubrine snakes. In victims of viperine poisoning we see profound fall in blood pressure. This is due to the action on vaso constrictor muscles resulting in vaso dilatation. Certain venoms contain powerful blood coagulants. These coagulants produce rapid death from intra vascular coagulation. The neurotoxins to which we have referred above are capable, in minute doses, of paralysing only such sensory nerve plates which send the sensation of pain (as in cancer, neuralgia, sciatica, lumbago). It has been found that cobra venom forms a compound with free lecithin of the body. This compound is capable of dissolving cancerous cells. This action is almost specific. *Haemolysin*: This active principle is responsible for dissolution of R.B.C. Generally speaking venoms of colubrine snakes cause haemolysis while those of vipers result in extensive sloughing, oedema, hæmorrhages from tissues and lowering of blood pressure by vaso-constrictor paralysis. *Fibrin* *Ferments*: These cause clotting of blood. *Antifibrin*

ferments: These retard the clotting of blood. *Proteolytic enzymes*: These digest the protein matter. *Bacteriolysins*: These dissolve various microbes and bacteria. *Cytolysins*: These dissolve animal cells. *Zinc and Organic Compounds*: It has been observed that a low amount of zinc is necessary for the healthy growth of cells which are undergoing cell division as is the case in cancerous cells. Excess of zinc retards cell division. The zinc found in cobra venom is found to be most suitable in stopping such cell division. The minimum lethal dose for a human being is a few milligram of dried venom; even such a small dose results in widespread destruction. This aspect of the question has deterred the clinicians from employing venom as a therapeutic measure more frequently.

COLLECTION OF VENOM

This can be collected in a variety of ways. The snake may be killed and venom extracted from the gland. It may be obtained from living snakes also. In snake farms and zoological gardens the later method is employed. The snake is caught in an adjustable noose on the end of a staff, and held. It is then induced to bite a receptacle such as a wine-glass whose mouth is covered with fine silk. The poison fangs penetrate this silk and when the animal bites the venom is ejected into this receptacle. By pressure on venom gland some more quantity can be extracted. There are frequently some organisms in the reptile's mouth. These are found in the venom also. This is sterilized before use. After collection the venom is dried and stored. It is not dried in the sun, since sun's rays destroy much of its potency. It is not heated. Its potency, toxicity and sterility are tested before it is employed as a therapeutic measure.

Chatterji writes that about 20,000 persons die of snake-bite in India every year. In the *Indian Medical Gazette* (July 1939) Chopra and Chowan say that there are 15,000 species of snakes in the world. 110 species are in India. Out of these 69 are poisonous (40 land and 29 sea variety). Common poisonous snakes in India are cobra, krait, daboia and viper. Persons bitten may not receive the fatal dose owing to intervention of clothing; unsuccessful attack; grazing the skin only, the fangs hitting a bony portion only or on toes and fingers from where the spread of toxins is slow. In these cases, cauterization, ligature, incision and suction may be effective. At present the treatment of snake and scorpion bites are unsuccessful. In Calcutta in spite of anti-venene and gold chloride injections 60 p. c. death rate is reported by Basu. When the venom has entered the main blood vessels and if more than half an hour has passed, nothing can be done. Mostly cases of collapse are seen, out of fear though not actually bitten by poisonous snakes. According to

Chopra the following are distinguishing points between shock and real poison effects.

SHOCK	REAL POISON
Onset of weakness sudden	Gradual.
Prostration and fainting	Consciousness not impaired.
Consciousness lost	Lying down.
Cold skin and perspiration, feeble pulse.	Heart not affected, skin warm.
Breathing shallow and hurried.	Laboured and gasping.
No paralysis	Paralysis gradually going up.
Heart Failure	Failure of Respiration.

The condition of the wound should be the guide. In cobra poisoning there is ascending numbness in limbs, the patient is drowsy and is unable to support himself. Head droops, eyes feel heavy; ptosis, pin point contracted pupils, dry tongue, inability to swallow, involuntary passing of urine and motion, and irregular breathing are usually present. In viper poisoning there is oozing of blood from the wound, dry throat, intense thirst, bleeding from the nose, vagina, rectum, and collapse.

THERAPEUTICS OF ANTI-VENOM SERUM

Snake in therapeutics made its first contribution in 1894 when it was used by Calmette. Since then the use of anti-venom serum has been widely established. It was thought that this anti-venene produced by Calmette would protect against poison of all varieties of snakes. But it was later found out that these sera were specific to a particular type only and therefore it was necessary to produce sera of different types. Such serum is obtained from horses which have been immunized by increasing injections of a particular type of venom until a maximum concentration of antibodies is produced. The prompt use of specific type sera has reduced the mortality of snake-bite cases to a certain extent.

In Epilepsy: Venoms of snakes were employed as therapeutic agents since it was believed that persons suffering from snake-bites were occasionally cured of some pre-existing disease. Epilepsy was one of these. Spangle of Philadelphia began to treat epileptics with injections of rattlesnake venom. A mixture of dried venom in water and glycerine was used. The initial dose was 1/100 to 1/400 of a grain of dried venom. He reported good results. In 68 p. c. of cases a decrease in number of fits was observed. He found that the coagulation time was prolonged. Fitzsimons of South Africa began to treat epileptics with injections of snake venom. His preparation is called "Venene" and is extensively used in South Africa with encouraging results. Burgess Barnet uses snake venom for a similar purpose. Local reactions sometimes occur but they are not serious. Cobra venom has been used by several workers.

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

The credit of these good results is ascribed by some to allergy. In epilepsy it is difficult to say with certainty whether this treatment is definitely beneficial. That epileptics improve under any new form of treatment should not be forgotten. Chopra says that snake venom has no effect on lepra bacillus. Chowan in a very interesting article in *I.M.J.* says that snake venom acts as anticonvulsant, reduces sensitivity of higher centres and alters water metabolism. Extract of *Rauwolfia Serpentina* added to the venom acts as nerve sedative, hypnotic, lowers blood pressure and lowers cerebral excitability. Detailed methods of treatment are given by him. Treatment should be continued with perseverance. Record of the case should be kept regularly. Dose of injection should be adjusted according to the reaction.

In Carcinoma: A worker discovered that one of his patients who was suffering from leprosy improved a great deal when he was bitten by a snake, especially in the relief of pain from which he suffered. He therefore began to treat the pain of malignant diseases with cobra venom injections. Relief of pain was definite. In some, the side of the growth began to decrease. Calmette injected cobra venom in carcinomatous growths and found in some cases the tumour decreased in size and even disappeared. Others maintain that no effect on the tumour was observed and that analgesia was unreliable and was no better than morphia. It is slower in action but lasts longer. It appears that injections of cobra venom have no effect on the development of malignant growths. The injections in the tissue of the growth itself brings about necrosis at the site of the injections due to proteolytic activity but the periphery of the growth is not affected. Professor Gosset treated 115 cases of new growths. He found the pain was relieved. But the effect on the size of the growths was doubtful. Morphia was not needed.

In painful conditions: Link reports that Indian cobra has no blood coagulation property. It has curare-like action on motor end plates. It has been advocated in cases of tic, delirium, hallucination, aphasia, melancholia, hysteria, chorea, asthmatic attacks, early cases of hemiplegia, paraplegia and other spinal conditions. Chopra maintains that the toxicity of cobra venom depends on its sulphur contents. Cases of sciatica, lumbago, neuralgia and locomotor ataxy, were treated with cobra venom injected intramuscularly 2 to 3 times a week. Fever and glandular enlargement lasted for 3 days. Cancer pain was relieved after injections. Similarly, pain in angina pectoris was also relieved. Pain in 70 p.c. of cases disappeared slowly but the effects were lasting. No untoward symptoms were seen. Snake venom when injected intravenously causes internal bleed-

ing. Doses employed are $\frac{1}{2}$ to 1 M.U. but not beyond this. Reaction should be guarded against. Do not increase the dose if the improvement is marked. Prolong the interval between two injections. Reactions to the injections are malaise, giddiness, temperature, nausea, diarrhoea and respiratory distress. Sometimes there is deep refreshing sleep after an injection. Some have reported return of sexual powers. Snake venom, if stocked for six months, does not deteriorate. It is incompatible with iodine and silver salts.

In Eye conditions: Zanthien reports cases of snakes in East Africa which throw venom in the eyes of their victims. Conjunctiva becomes painful. By injection of cobra venom the vision is increased in 10 minutes. It is used in capillaritis and arterial spasm of blood vessels.

As a local haemostatic: It is said that venoms of certain snakes possess powerful coagulant properties. Burgess Barnet experimented these venoms on haemophilic blood. The venom of Russel viper was particularly active in this respect. It reduced the coagulation time from 33 minutes to 17 seconds. Diluted venom was used. A solution of 1 in 10,000 could be applied with safety. Sterile solution was evaporated to dryness in ampules. In this way potency was preserved. Solutions could be made by adding water to this dry product. Cambrook used it successfully in dental surgery, and it has been used extensively in the control of troublesome bleeding in many other conditions. This Russel viper venom is now produced commercially ("Stypven" of Messrs. Burroughs Wellcome & Co.). Too much should not be expected. In the mouth, when there is gross infection, haemostasis may be difficult. Oozing from external wounds can however be definitely controlled by it. It may be combined with adrenalin. The venom should be applied on a dressing held firmly without undue pressure.

As a general haemostatic: 1 in 3000 solution of venom is used subcutaneously or intramuscularly, the site of injection being in different limbs. After 3 or 4 injections local reactions follow. If there is severe reaction the next dose is reduced or more dilute solution is used. In recurrent epistaxis and bronchiectasis with haemoptysis it is reported to have given good results. In pupura haemorrhagica it was less successful. The best results have been obtained in idiopathic uterine bleeding which has resisted other forms of treatment. Moccasin venom is more useful. It is sold in the market in 1 in 3000 sol.

Conclusion: It can be said that cobra venom as a palliative treatment for cancer-pain and epilepsy, and viper venom as an emergency treatment for bleeding has been established beyond doubt.

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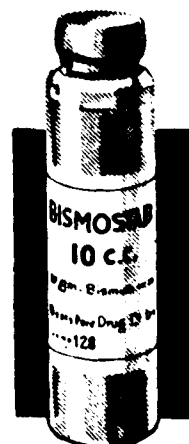
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CLINICAL NOTES

Four Rare and Interesting Cases

• Dr. P. S. Varma, L. M. P., Dampier Hospital, Gobardhan, Muttra

(1)

A baby born with the Encephalon or Brain outside Cranium

On 21-8-40, one Ram Ratan Khar, resident of village Gohana Police Station, Sasni District, Aligarh, U. P., appeared before me early morning at my house in the District Hospital Compound, Aligarh, with a newly-born female baby for treatment. The baby was well-wrapped up in his Dhoti. As soon as he lifted up the covering I noticed a congenital tumour, coming out through the upper end of nasal cavity and pressing upon nose, lips, mouth and chin. I at once thought of congenital lipoma nasi, or a meningocele, or a dermoid cyst. I felt interested and examined the peculiar growth very carefully and, to my surprise, all my speculations fell through. I then examined it for a congenital sarcoma, springing from the base of the skull, but here too I met with failure.

Being disappointed, I began examination of the cranial bones. The head had no oval appearance. The parietals were in a flat position, and could be easily pressed in. The frontal was not well in an erect position, so was the occipital. My manipulations convinced me that the cranium was empty. Now I thought the growth to be a brain, and began its examination to satisfy my anxiety.

Yes, it was a brain. The spinal cord was emerging through the bony nasal cavity from the base of the cranium, and was continuous with the substance of the posterior part of brain. The brain itself was contained in a bag of meninges. Both the hemispheres were distinct (Vide picture 1).



(1)

the Agra Medical College Museum.

(2)

Prolapse of Greater Omentum through vaginal Orifice alleged to have resulted from sexual intercourse

On 24-7-40, a girl of about 14 was brought to the Out-Patient Department of the District Hospital, Aligarh, U. P., with a complaint that something unusual

was protruding through vaginal orifice since last night. The girl was healthy looking. On examination a dirty mass was found protruding through vaginal orifice and lying between the thighs to an appreciable distance. It did not look like prolapse of the uterus.

On taking history of the case, the girl told me that this mass came out after coitus last night at about 8 p.m. by her husband. Now my mind began to work, and I thought the mass possibly a portion of gut escaping through a slit in the posterior vaginal fornix as a result of violent sexual intercourse.

I examined her husband also. He looked quite healthy and his genitals well developed. He gave the history that he had the coitus with his wife in the sitting posture.

After a surgical bath with hot saline, I examined the mass, and to my surprise, it was a portion of the greater omentum, highly congested, thick, elongated and rolled up due to its passage through the vaginal canal. It was 6 inches long, with a thickness of about 1½" in diameter. The patient was then taken to the operation room, where with rigid asepsis, the omentum was ligatured, cut and reduced into abdominal cavity. The patient made perfect recovery.

After excision and reduction the private parts were carefully examined. A vertical tear (lacerated wound forming a slit ½ × ½) was found in posterior fornix on the right side. There was no other injury to vulva or vaginal cavity. The hymen was absent, and the vaginal cavity was well dilated indicating that she was used to coitus.

Lipoma Ala Nasi

A woman aged about 20 years of the village Dodhpur, came to District Hospital, Aligarh, with a growth on right side of her face, the tumour was found springing from the right ala nasi. The point of growth was in the upper part between the inner end of eye and bony ridge of nose. The tumour was pedunculated, pendulous, soft and semi-fluctuating, lobulated, gall-bladder like in shape, and freely mobile so much so that it could be raised up to her forehead. Picture 2 will



(2)

show the tumour attached to the right ala nasi. The thin cord-like substance is a nutrient artery to the tumour. The growth is causing pressure on the nose, lips, and chin. The nose is seen deviated, and the right nostril is badly pressed. Breathing is interfered with. Great inconvenience is caused in eating and drinking. The patient had to lift it up with the other

Fibro-Lipoma of Face

On June 27, 1938, one Musst. Jharia aged about



(8)

weight of the tumour is causing her.

Hexamine alternately with Quinine in Malaria

- Dr. M. N. Paladhi, L. M. F. (Beng.), Lonaghat Hospital, Almora, Himalayas (U. P.)

Sherma, a Hindu male of 22 years, was admitted into the hospital with an attack of fever which did not come down to normal since a week. The fever was usually preceded by rigour with a slight remission in the morning. Tongue was coated and liver and spleen were both enlarged. He also gave history of occasional attacks of malarial fever since last one year. The case was diagnosed as malaria. After an initial mercurial purge, quinine was given both intramuscularly and orally along with diaphoretic mixture and tepid sponging. But the temperature ranged from 100° to 103° F. for 11 days. Then I was just about to order for atabrin when a thought came into my mind of trying hexamine along with quinine which was successful in Dr. Oliver's cases of malarial fever. Hence, I gave quinine and hexamine alternately on the 12th day of the treatment. Tepid sponging was also continued. 3 days' treatment on this line brought the temperature down to normal and the patient was discharged cured from the hospital after another 3 days. My object in writing this case note is that in mofussils where synthetic drugs are not available and where quinine alone does not give response hexamine alone or alternately with quinine may be given. Hexamine can also be given intravenously in 4 to 6 c.c. doses of 40% solution. I am thankful to Rai Sahib Dr. H. S. Bisht, Civil Surgeon, Almora, for permitting me to publish this case note.

A Case of Hepatitis with Cholecystitis*

- Dr. L. K. Barman, Rangya (Assam)

A Hindu male, aged 40, complained of severe pain over the right hypochondrium, low type of fever, and sleeplessness of 3 days' duration.

Both the liver and spleen were slightly enlarged. Conjunctiva was slightly icteroid.

There was a previous history of malaria. He is addicted to alcohol and *ganja*.

Quinine failed to cure his condition.

On the first day he was put on calomel and santonin.

Subsequently he was put on alkaline mixture with soda salicylas and antiphlogistin over the hepatic region. Half a grain of emetine was also given intramuscularly.

Still later, he was put on a course of cytotropin.

The patient responded quickly to this treatment.

* Rearranged and summarised by the Editor.

Treatment of Salpingitis

- Dr. B. L. Kapur, M. D. (Berlin), Assistant Editor, "Jr. of Obs. and Gyn. Society of Northern India"

The treatment of inflammation of tubes and the parametrium requires a great consideration. In this country these cases are looked after not only by the specialist but also by the general practitioners. The injection of milk form the most popular therapy and they are administered on a very large scale. Although the antibodies are mobilised yet the relief begins very late, hence salicylates and other analgesics have got to be supplemented.

Sidoroff has suggested blood transfusion of homogeneous group. After the first injection the pain disappears and the temperature comes to normal. It is more suited for acute stages. Tehnichow advocates blood transfusion of heterogenous group. Although only 3—5 ccm. are administered yet there is a very severe reaction in the form of high rise of temperature, cyanosis, etc. Such therapies should be avoided as far as possible. It would be giving unnecessary troubles to the patient and one would win every thing except the thankfulness of the patients. Montag recommends Eufamin. It is an antigen containing streptococci, staphylococci, bacillus coli and Neisiers bacillus. It can be used in subacute and chronic stages only: in acute stage it gives severe local and general reaction. A special feature of therapy has been described that 3 cases who were sterile after marriage for 5—7 years, got children after eufamin therapy. It is worth trying in cases of sterility due to salpingitis.

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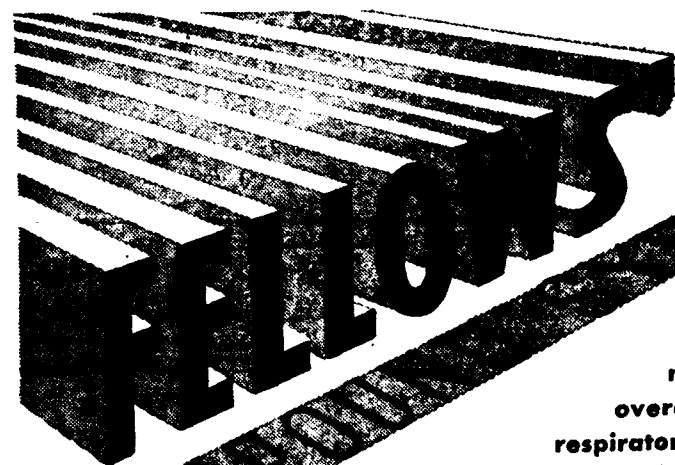
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Physical Fitness of our Nation

The rate of invaliding of recruits to the Indian Army and that of those who get sick after admission, although not more than 6.43 and 9.14 per thousand¹, yet raises issues which are of far-reaching importance. This does by no means represent the average mean of physical unfitness of our people, and if the recruitment to the Army is on a vaster scale than at present the rate of rejection would perhaps be 30 to 40 per thousand. It would be certainly higher for the educated community, and since mechanised warfare needs as much of brawn as of brain it follows that the physical fitness of our educated boys is of supreme importance.

But unfortunately physical education has been sadly neglected with the result that in an emergency of the kind we are facing today the country

¹ Health of the Army in India. Annual Report for 1939. A critical review of this report is published elsewhere in this issue.

is finding it difficult to mobilise educated boys for the hardy task of aerial and mechanised warfare.

The Skeen Committee (1927) long ago recommended that a definite policy should be laid down to improve the physical fitness of the nation, but it is a pity that very little attention has been given to physical education as an integral part of the curriculum in our educational institutions. We are today reaping the results of this complacent policy.

The aim of physical education is not to produce a nation of trained athletes but to ensure that by proper training and development of body men and women may be enabled to carry on their daily avocation to the utmost of their ability and to stand the tests of peace and the tasks of war.

The defects in the present scheme of physical education and training are too numerous. Of these two are vital: absence of adequate medical examination of our school and college boys to determine their state of health and physical defects, and absence of continuity of physical education from elementary schools to colleges.

Physical training activities must become naturally merged into community health problems and military drill must be made compulsory for all high-school and college students. As the British Board of Education has recommended, at least 2—3 hours a week should be devoted to build the health and to increase the physical fitness of our boys.

Of course, physical exercises can only benefit the healthy and not the sickly child, nor the one with physical defects. Therefore, a preliminary finding of child's health, his capacity for physical exercise and the amount of his energy to stand physical strain is essential. As such, the vital scheme of adequate health examination of all school-going children is a prime factor in any successful prosecution of physical training programme. This is lacking to-day, and must be made good without any further delay.

The need for a physically fit nation capable of defending itself against external aggression is so great now, and would be greater in the years to come, that it would be an hazardous policy to continue to neglect it any longer. It is a fiction that brain and brawn cannot go together.

CURRENT COMMENTS

Lack of Criticism

It is the pride of the *journals* of the British Medical Association and the American Medical Association that their correspondence columns are well utilized by their readers by way of constructive criticisms of professional and medico-economic and political articles appearing in these journals. This is rightly considered by their editors that the readers are making a sensible use of the printed matter, and is taken as the criterion of the popularity and usefulness of these journals. We earnestly appeal to our readers to make a similar use of this *Journal* and enliven the correspondence column with their criticisms on professional, editorial and other articles appearing in it. Unless there is criticism, we would be unable to understand what reactions the thoughts embodied in the *Journal* produce in the minds of our readers. Lack of criticism begets a boring monotony and staleness and gives no clue as to whether the journal serves the purpose for which it is printed and published at an enormous cost.

Insulin in Phthisis

Emaciation and loss of weight are two of the characteristic signs of the devastating nature of pulmonary tuberculosis. These operate in a vicious circle. Ordinarily a regime of balanced diet is prescribed to the patient with a view to combat emaciation and restore body-weight in the hope that such an improvement would result in the ultimate healing of tuberculous lesions in the lung. Not unoften the expected results do not materialise. Therefore, George Day² suggests that high carbohydrate diet with insulin to render it completely utilizable may result in the improvement of healing of tuberculous lesions which in turn is the result of regained body weight under this "forced and unnatural feeding". He writes that without insulin the modification in the diet makes no alteration to the course of the body weight, and that with insulin "the effect is really staggering". According to him the patient receives five injections of insulin, each of 10 to 15 units, during the 24 hours—three of them given half-an-hour before the main meals and the other two in the middle of the morning and of the afternoon, accompanied by a fruit drink containing 3 ozs. of cane or grape sugar. This treatment is continued to the point of hypoglycemia by which time the patient would have "gained prodigious weight in a short space of time". Analysis of the results of George Day's regime shows (1) increase of body-weight and (2) improvement in the sedimentation index which is derived from the logarithm of corpuscles maximum

2. *B.M.J.*, Sept. 21, 1940, p. 376.

velocity and which is taken as a measurement of improvement. Day's method of 'forced' feeding seems to deserve an honest trial in our country, but we think that care should be taken to avoid hypoglycemia since no remedy should be more drastic than the disease itself.

Glossitis

Manson-Bahr³ suggests that since glossitis of a similar nature, and perhaps non-specific to the disease, is found in pellagra, sprue, pernicious anaemia and idiopathic steatorrhea, these diseases are likely to be closely related to one another. He is therefore of the view, both on analogical and therapeutic grounds, that a deficiency of the vitamin B₂ complex is common to all these diseases and may even partially explain the phenomenon of characteristic glossitis. This opinion is strengthened by the fact that nicotinic acid and riboflavin are more or less specifics to sprue as well as pellagra and kindred diseases.

Diabetic Peripheral Neuritis

Fein and others⁴ have studied 422 ambulant diabetic patients, of whom 9 had a symmetrical peripheral neuropathy, exactly similar to type of vitamin B₁ deficiency. This led the authors to put the patients on a daily administration of 10 mgs. of thiamine hydrochloride by mouth without otherwise changing the diabetic regimen. 8 of their cases were cured and one showed improvement. This would show, as in the case of alcoholic peripheral neuritis, that the underlying pathological changes in the peripheral nerves, whatever may be the specific disease which gives rise to neuritis, are essentially due to vitamin B₁ deficiency, and that the most rational treatment would be the replenishing of this deficient factor.

Nutritional Value of Diets

Nutritive values of diets are evaluated on the weight of the food-stuffs purchased, deducting a certain arbitrary fraction as waste. Banerjee⁵ considers this usual method of survey as definitely misleading in as much as the values so obtained are considerably higher than these obtained by the actual analysis of cooked foods. He therefore recommends that the latter method though arduous should yet be preferred lest incorrect valuation may lead to wrong assumptions. He gives a comparative table showing differences in the assay of raw and cooked food-stuffs, and the differences are so marked as to justify his thesis that reliance could be placed only on the nutritive values of cooked food-stuffs as the best guide of judging the food problems of a particular community at particular seasons.

3. *Lancet*, Sept. 14 and 21, 1940

4. *J. A. M. A.*, Dec. 7, 1940, p. 1978.

5. *Annals of Bio-Chemistry and Experimental Medicine*, Calcutta, Vol. 1, No. 1, March '41, pp. 1—9.

SUPPLEMENT TO THE INDIAN MEDICAL JOURNAL

MADRAS

APRIL 15, 1941

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The 6th U. P. L. P. H. Officers' Association Conference

[The 6th Conference of the U. P. Public Health Branch of the A. I. M. L. A. was held at the Provincial Hygiene Institute, Lucknow, on 24, 25 Nov. 1940. Capt. L. K. Ray, Assistant Director of Public Health presided. It seems that the department is fully aware of the grievances of the L. P. H. Officers but that the Government have not yet acceded to their recommendations. We may, however, point out that many of these grievances are such that they would not entail any financial burden on the Government, e. g., the use of dak bungalows and Canal Roads, and the conferring of gazetted rank on the first grade officers of L. P. H. Inattention even to these small grievances is bound to breed discontent and even affect the efficiency of this Cadre of Public Health Workers. We trust that the Government would look up to these matters and do at least minimum justice to a class of officers who are the bastions of public health in the United Provinces.

Ed., I. M. J.]

● Dr. Mohammad Hussain Jafri, President of the Branch, welcomed the President of the Conference in the following words :

I am indulging in no conventional formality when I, on behalf of the United Provinces Public Health Branch of the All-India Medical Licentiates' Association and my own, extend to you our warmest and most respectful welcome. The mere fact that you have kindly undertaken the trouble to come and open our conference is a convincing proof of the abiding nature of interest that you have at heart for the well-being of the Members of the Association, on whose behalf it is my proud privilege to place before you a few points for your sympathetic consideration.

It has often been said that "prevention is better than cure" and we of the Public Health Department stand to represent that necessary body of people, who undertake all the risks of life joyfully and devote their whole time and attention to carrying from door to door our mission of combating epidemics and resorting to all possible measures of prophylactic safeguard to the needy millions. We are constantly exposed to dangers which the more fortunate lot of public servants in other branches of employment can hardly dream of. It is a real irony of fate that those who have always to play the game of hide and seek with their own lives should go without any kind of provisions for their families and

should be deprived of any pension or a contributory provident fund. We have repeatedly urged our demand for a fair treatment at the hands of the Government and although we have met with little success so far, we mean to go on agitating for what we consider to be our legitimate due, till our tale of woe moves the hearts of the arbiters of our destiny.

It is with a heavy heart that we have to look to the gloomy prospects of our service.

A man of the subordinate public health service has to begin as an itinerant officer in charge of a travelling dispensary and continue as such for a period of about fifteen years before he could expect a lift in the cadre of second class medical officers of health.

But even that expectation and hope seem to have become a distant dream now. There are hardly any chances of the inauguration of fresh Public Health Schemes in our Provinces, and the be-all-and-end-all of our life seems to be confined within the four corners of our grade pay.

I would, however, be guilty of ingratitude if I do not take this opportunity of offering our heartiest thanks to the Director of Public Health, U. P., and the

Government for restoring the 20 posts of the Assistant Medical Officers of Health which were retrenched.

We feel that that the L.P.H. Officers of the First grade should find a place in the list of the Gazetted officers and as the number at present is only 50, there should be no difficulty in acceding to our request. Deputy Inspectors of Schools with similar pay and in subordinate service enjoy the privilege which we are denied.

The percentage of promotion from subordinate public health service to provincial cadre is so low that we sometimes feel that measure of disappointment which tells upon the sense of enthusiasm for work.

After an experience ranging over a period of more than 14 years which entitles a man to the promotion, and after having devoted the best portion of our lives to the service, we feel that we deserve to be treated more kindly. I trust that with yourself to guide us, the percentage of promotion will soon be raised to a figure not lower than 10 per cent.

Our next point is with regard to the appointment of the members of our service as the Health Officers in charge of the third class municipalities, which number 16. We also want to draw your kind attention to our request that we may be allowed the use of canal service roads, a stay in the public works department, canal, forest and district board Dak Bungalows, while travelling on duty during the hot months of May or June or even the muddy months of the rains. The plight of the officers in camp who have to live in tents to quote one of our predecessors in office, Dr. Mit Singh, "deserves the intervention of the society for the prevention of cruelty to man if there is any such."

The case of the medical officers in charge of travelling dispensaries also deserves notice. They are recruited in the new scale of pay of Rs. 100 - to Rs. 150 - within which amount they have to manage to meet their travelling expenses as well. The need of giving them travelling allowance is pressing and I hope that justice will be done to them. Similarly the conveyance allowance of school health officers should be raised from Rs. 18/- to Rs. 25/- per month.

With your permission, Sir, while welcoming the brother delegates who are present here to-day, I wish to address a word to them on the necessity of the consolidation of our association. Our motto for life if we are to achieve any success should be "Each for all and all for each." It is only with the strength of a united body that we can expect to steer through the difficulties of life that are strewn over our path. It will not be out of place here to reiterate what has always been said that we must do our duty with an unflinching determination and with "Heart within and God over head."

Sir, before I take leave of you permit me once again to offer our sincerest thanks to you for the trouble that you have taken and the patient hearing that you have kindly given. I will be laying myself open to the charge of presumptuousness if I attempt to express my gratitude to the delegates who are assembled here, for, is not anything done for the Association or any trouble undertaken on its behalf a reward in itself?

Presidential Address

● Capt. L. K. Ray, D. P. H.

President and the members of the U.P.L.P.H. Officers' Association,

I thank you profoundly for the honour you have done me by inviting me to preside over the deliberations of your sixth annual conference and for your kind welcome today.

It is a great pleasure to me to have got this opportunity of meeting you all in one place and exchanging thoughts and ideas with you.

Having been now more than a quarter of a century in the Public Health Department and connected with various phases of its activities I had very good opportunities of observing your valuable work and the important part you are playing in the promotion of the cause of Public Health in the Province.

During epidemics as medical officers in charge of T. Ds. and medical officers on epidemic duties, you form the front line of soldiers who penetrate to the remotest villages in the interior, at the cost of great physical discomfort and even risk of life, and camp in such areas and minister to the needs of suffering humanity. As assistant medical officers of health your task is no less arduous. As municipal medical officers of health also you have certain special difficulties because you are posted to the smaller towns, and intrigues and party spirit are often rife in these smaller municipalities. Under all these adverse circumstances, the amount of useful and beneficial work that you have carried out will do credit to any body of public servants. It is a great pity that such a useful body of public servants have to labour under so many grievances enumerated by the President of your Association. At your last annual general meeting held in 1938, the then Minister of Public Health, Mrs. Vijaya Lakshmi Pandit, declared that the department should be reorganised. Perhaps some of your grievances would have been removed if the reorganisation would have been carried out but it has not yet materialised. It is, however, possible that after the report of the medical reorganisation committee is out, some steps in this direction might be taken.

Your grievance No. 1 about the non-existence of a pension or contributory provident fund is common to all officers of the department who are appointed before July 4, 1931. The Public Health Service Association has also been making strong representations about this grievance but without any success. The usual answer of the Government is that the salaries have been fixed at enhanced rate to compensate for the loss of pension but the enhanced rates might also be due to loss of private practice, etc. The medical officers in charge of T. Ds. do not get any enhanced rates of pay and as matters stand now several of them have little chance of promotion to the first grade, as few posts for the first grade officers are being created and there are no retirements. The lot of the second grade officers deserves special consideration and I hope that Government will consider the matter favourably.

As has been pointed out by the President of your Association chance of promotions of second grade officers

to first grade are meagre as there is little extension of district health schemes. At the Provincial Medical Conference held at Dehradun last month, Dr. Panna Lal, Adviser to his Excellency the Governor, said that he hoped that two new district health schemes would be opened next year. But now I learn that owing to financial stringency due to war, inauguration of new health schemes has been scored out. This is unfortunate not only from the point of view of promotion of medical officers in charge T. Ds. but from the point of view of progress of Public Health activities in the province.

The question of recognising the first grade officers of the Subordinate Public Health Service as gazetted officers has been threshed out before but I hope Government will reconsider the matter in regard to first grade second class health officers, if they have extended the privilege of gazettement to the deputy inspectors of schools.

Your grievance about promotion to provincial cadre was fully dealt with in the Presidential address of Rai Bahadur Dr. K. P. Mathur in March 1937. Your difficulty seems to be that being a comparatively newly inaugurated service there are for the time being no retirements and there is at present no expansion in the cadre. The consequence naturally is temporary stagnation and block in the promotion. This difficulty will disappear after the service becomes sufficiently old and retirements begin. Government might be requested to give special facilities till this handicap is removed.

You want more health officers to be appointed for the third class municipalities, I also want the same thing. There are several fairly large towns in the first range, which I think should have a medical officer of health, and the chairmen of those municipalities press me for one whenever I visit those places. Appointment for more Municipal Health Officers however means more expenditure to Government: so we must wait for better days for progress in this line.

I fully sympathise with your difficulties in not being allowed to stay in Government inspection houses and use Canal-roads. You know the department tried its best to get this facility for you. You can much better carry out your work if you are given these concessions and it is not only in your interest but in the interest of the Government work that you should be given these facilities. I understand that owing to certain technical objections which affect the gazetted ranks of other departments, this concession could not be granted to you. In epidemic times however this facility means quicker and better service to villagers at a time when their lives are in danger and I hope you will be allowed this advantage at least in epidemic times.

As for travelling expenses for medical officers in charge of T. Ds., this department tried to secure for them some travelling expenses, but as far as I know Government did not agree.

You thus see that the department has always tried to mitigate your reasonable difficulties and I am sure the present head of the department will be no less sympathetic than his predecessors.

Gentlemen, we meet under tragic circumstances this year. A stupendous war is raging. This has not only crippled the financial resources on which Public Health

progress rests but also thrown on us special responsibilities. Many of you spend a good deal of time in giving First Aid training, and undertaking other valuable war-work. I would urge on you to carry on this work with enthusiasm, not only as a war exigency but as a good opportunity to train the citizens in First Aid, Home-nursing, etc.

Gentlemen, in your resolution No. 9, passed at the last annual general meeting held in November 1938, you wanted that the L.P.H. class at the Provincial Hygiene Institute be abolished. Circumstances have now so happened that this may be brought about in the not distant future. As the Agra Medical School has been abolished L.P.H. class will cease when no more graduates of the medical school are available for training. This means that before long the recruits to the departments will all be D.P.H. officers. How this is going to affect your status, it is difficult for me to say. Of course, by that time I shall be long retired. I can however assure you that from my retirement I shall watch your welfare with sympathy and interest.

Before concluding, gentlemen, I thank you for the kind hearing you have given me and wish your Association every success.

Honorary Treasurers' Report on the Financial Condition of the U. P. L. P. H. Officers' Association

Gentlemen, As the honorary treasurer of the Association, I have great pleasure to place before you the report on the financial state of affairs of our association for general information.

This report consists of the accounts for 2 years, i.e., for 1939 and up to Oct. 1940 as no annual general meeting could be held in 1939. The office of the honorary treasurer was transferred to me in 1938 and I received the actual charge of the accounts on March 9, 1939 with a cash balance of Rs. 20-7-6. With that meagre balance, we could not even arrange for typing and printing of the resolutions and proceedings of the conference held in November 1938. In view of the then threatening decrease of our cadre owing to the abolition of the 20 posts of the Asstt. Medical Officers of Health, the association had to do more work in the form of personal interviews, correspondence and deputations. All these activities required expenses. The office-bearers and members of the Executive Committee spent from their own pocket on T. A. etc. and the work of the association for some time. There was an outstanding arrears of Rs. 719/6/3 which included Rs. 490/10/4 of the L. P. H. Association membership fees, Rs. 223/10/4 for I. M. J. subscription paid by L. P. H. Assn. for members and Rs. 5-4 for the cost of photo not paid by the members. In order to help our members the executive committee decided that the dues of the *Indian Medical Journal* be written off in case of those members who clear off the association dues. The treasurer was authorised to realise the arrears in easy small instalments by adjusting accounts in consultation with the defaulters. Notices and detailed account slips and reminders were issued to them and personal letters were written and some members were personally approached and requested to pay off their arrears of subscription gradually. It seemed that certain members against whose names several years' unpaid subscription had accumulated, found it difficult to pay it off all at one time. It is a matter of great satisfaction that as a result of constant efforts during 1939, Rs. 456-1-9 were realised. This sum included, in the case of some members, the subscription for 1939. The Executive Committee had to ask for a special donation of Rs. 2 from each member to carry on

the day-to-day work of the Association. We received Rs. 52 as special donation in 1939 from our members. The details of the consolidated income and expenditure during 1939 are as follows:—

INCOME		Rs.	A.	P.
1. Annual subscription special donation and arrears realised from members up to December 1939.	...	294	11	6
2. Recovered from Mother Association towards postage stamp, telegram, etc.	...	128	15	0
3. Cash balance received from the outgoing Treasurer.	...	20	7	6
4. Advance paid to the Organising Secy. and adjusted in account.	...	12	0	0
		456	1	9
EXPENDITURE				
1. Printing and typing charges	...	163	13	9
2. Postage and telegram charges	...	72	10	0
3. T.A. to members of Executive Committee.	...	57	15	0
4. Stationery	...	18	6	0
5. Miscellaneous	...	4	8	0
Total	...	317	4	9

Out of this expenditure Rs. 128-15-0 were recovered from the mother association which were shown on the income side. The closing balance on 31st December 1939, was Rs. 138-13-3 after paying off all the out-standing bills. Thus the year 1940 began with an opening balance of Rs. 138-13-3.

There were 7 cash certificates of the face value of Rs. 700 which had formed the reserve fund with the Association up to 1939. During the year under report, this reserve fund was not touched at all but was increased to Rs. 800 by purchasing 8 cash certificates of total face value of Rs. 800. All cash certificates have been invested in the name of the U.P. L.P.H. Officers' Association. Formerly they were in the personal name of the Treasurer. A saving bank account has also been opened in the name of the U. P. L. P. H. Officers' Association in the Allahabad Bank and all the money realised from members has been deposited in the saving bank account of the Allahabad Bank.

The income and expenditure of the branch for 1939 was passed by the Executive Committee and Dr. Syed Ahmad has been appointed by the Executive Committee to audit the accounts. His audit report will be placed before the Executive Committee for consideration.

The subscription of our Association for 1940, the arrears up to 1939 and special donation not paid amounting to Rs. 388 has yet got to be realised from the members by the end of this year. I will appeal to the members present here to pay off their dues before they go away after attending this conference as it will save remittance charges and postage charges in unnecessary correspondence. The dues of the I.M.J., amounting to Rs. 278-7-0 have been written off under instruction from the Executive Committee. From January to October 1940, a sum of Rs. 216-15-9 has been realised and efforts are being made to realise the remaining balance. The income and expenditure statement for the year up to October 1940 is given below

INCOME				
1. Opening balance on 1-1-40	...	138	13	3
2. Subscription realised from members	...	147	8	6
3. Amount realised from Mother Association	...	69	7	3
4. Amount of cash certificates encashed for the purpose of re-investment on the expiry of the term	...	699	0	0
Total	...	1,054	13	0

EXPENDITURE		Rs.	A.	P.
1. Postage and telegram charges	...	37	8	6
2. Typing and printing charges	...	49	12	8
3. T. A. to members of Ex. Comm.	...	39	12	0
4. Stationery	...	4	13	0
5. Cost of cash certificates purchased	...	705	0	0
Total	...	836	13	9

From enquiry, it is learnt that if money is invested in Government security, it will fetch more interest. The money of the cash certificates will therefore be encashed and invested in Government securities. The Executive Committee has also passed a resolution in its meeting held on 1-9-40 that a sum of Rs. 200 be invested in the purchase of war bonds out of the arrears amount to be realised from the members subject to the approval of this conference. If we succeed in realising our arrears, we shall have reserve fund of Rs. 1,000 and our financial position would become stable.

During the year under report, the following 6 members namely, Dr. Syed Ahmad, Dr. Sajjad Hussain, Dr. Pram Singh, Dr. Om Prakash, Dr. M.B. Mathur and Dr. Inderjit Singh have joined our association and have paid its dues. There are still 15 L.P.H.'s who have not yet joined the Association and I appeal to them to strengthen our association by becoming its members. Dr. Bishambher Dayal, who had gone to England for higher studies, after passing his D. P. H., has been appointed in the R.A.M.C. His resignation from the membership has been accepted and dues against him have been written off. One of our members Dr. Jagannath Prasad Gupta, M.C. I.C.T.D., has died a very premature death at a very young age. He was hardly 28 years of age and we are all sorry for him.

I will request every member to co-operate with me in realising the arrears. Our number in the department is small and unless all members of the class join hands together and make regular payments, our work cannot be done satisfactorily.

With these words, I again appeal to every member in the interest of the Association to pay off the arrears and pay the annual subscription regularly in future. (Sd.) I. N. SAXENA.

Annual report of the U.P.L.P.H. Branch of the A. I. M. L. A.

Mr. President, Gentlemen and colleagues, I, on behalf of the Association, thank you, Sir, very much for having consented to preside over this sixth Annual General Meeting of ours. I know you have done this at a great sacrifice of your valuable time and even your personal convenience, but sir, the mere fact of your having taken so much trouble in coming here to guide our deliberations this afternoon is a proof positive of the interest you have in our cause.

Before touching any other point, I deem it my duty on behalf of the Association to thank the Government and the Director of Public Health for having revived the twenty posts of Assistant Medical Officers of Health. The Association is also thankful for the sanction of two other posts of Assistant Medical Officers of Health in two districts out of five in which health scheme was proposed to be started last year. But unfortunately, however, due to financial stringency created by the outbreak of the War, this scheme could be extended to only four such districts. One of these posts is, therefore, for the present held in abeyance. Let us hope and pray for better times when alone we can expect some more posts.

Ours has been a tale full of woe but, gentlemen, I would not take your valuable time in repeating them again here even

categorically. Suffice it to say, that most of our grievances remain still unredressed. But we sincerely believe that our cause is just and we will, therefore, go on agitating till we are able to secure justice.

Due to paucity of funds, we could not hold our general meeting last year. However, early this year our financial position improved and it was proposed to call a general meeting, but we had to give up the idea, the province being then in the grip of epidemic. Earliest, therefore, when we could meet was this month of November.

Two years back in the year 1938, it was in this very month of November that we met last when Mr. Partap Narain Saxena was selected as Secretary. He carried on till the month of November 1939. He was, however, losing his health and was therefore compelled to resign. The Association is indebted to him for the valuable services rendered by him.

Casualties

It is with a heavy heart that I have to bring to your notice the untimely death of late Dr. Jagannath Prasad Gupta of P. S. H. S. grade II. May he rest in peace!

Our Membership

We started in the year 1932, when the axe of retrenchment was over our heads, with thirty members only. In the year 1937 this number rose to about seventy, and to-day the figure stands at eighty out of the total strength of ninety-nine. We are not satisfied even with this number as our ambition is to bring every licentiate in Public Health within the fold of the Association and I am quite confident that within a very short time we shall be successful in our aim and hardly then will be found even a single licentiate in Public Health out of the Association.

Work done during the period

As to the work done during the period under report I would like to submit that it was quite satisfactory. A Sub-Committee of three members with my humble self as convener was formed to frame rules for the guidance of the Association, but due to certain reasons nothing has been done in that direction so far. We are quite conscious of the fact that endeavour should be made to keep our scientific knowledge up to date and as such we passed a resolution last time for the award of a Gold Medal to the writer of the best essay on a Public Health subject. The Executive Committee therefore appointed a sub-committee of three members of which Dr. Prakash Chandra, M. R. C. S., L. R. C. P., is convener to give effect to this resolution. This is over and above our scientific section that we usually have every year.

We had three meetings of the executive Committee in which important business was transacted.

Resolutions passed by us in the last Annual General Meeting were duly submitted to the authorities but no reply has since been received from them. Special difficulties felt by the office bearers were communicated to you individually twice in the form of letters on two different occasions for favour of your consideration.

Our Finances

Our financial position, as it stands to-day, can be called satisfactory, the exact idea of which you will have presently from a detailed report of our honorary treasurer.

It is with great regret that I have to bring to your notice that some of our members are apathetic in paying up the dues of Association. Despite strenuous efforts on the part of the treasure there is yet a huge amount of arrears standing

against members and I am afraid if members do not take due notice of this fact, a time may come when we would begin to feel the pangs of financial stringency.

Conclusion

In the end I beg once again to express my respectful thanks to you, Mr. President, other gentlemen and colleagues who have come here even at personal inconvenience to grace this function.

I am also grateful to you for the patient hearing you have given me.

(Sd.) M. G. JHINGRAM.

Proceedings of the Scientific Section

The scientific section was held at the Provincial Hygiene Institute, Lucknow, on November 24, 1940, at 8-30 A.M. under the presidency of Dr. P. Chandra, M. R. C. S., L. R. C. P., Assistant Hygiene Publicity Officer, U. P.

The discussion on "How to improve Health Conditions in Rural Areas" was initiated by Dr. Ram Ratan Rastogee of Partabgarh. Several members took lively interest in discussions and made comments on the conditions prevailing in different districts. Some very useful suggestions were made for the improvement of the health conditions by members present.

Dr. Shiv Das Agarwal of Pilibhit narrated his experience of administration of Kaolin to active and acute cases of cholera with persistent vomiting and said that in such cases instead of large volume of water with Kaolin, Kaolin mixed with water and made into a paste was found to have been better retained by such cases. Drs. Syed Ahmed of Fyzabad and Jafri of Barabanki also took part in the discussions.

After this Dr. P. Chandra spoke on the "System of Medical Education" in England and facilities available to medical licentiates for higher studies in Europe and in England. He also narrated his experience of his life in England and on the Continent. His discourse was very highly appreciated and all the members present warmly thanked Dr. Chandra for the valuable information conveyed in his lecture. Dr. Chandra after summing up thanked all the speakers and closed the scientific section at 12 o'clock.

The award of the prize of Rs. 25 announced to be given to the writer of the best essay on "How to improve Health Condition in rural areas" was postponed for three months and was decided that three months' notice be given in the *Indian Medical Journal* requesting all the licentiates in the Province to send the essays so that the judging committee may decide about the merits of different papers received. It was also decided that Dr. P. Chandra, Assistant Hygiene Publicity Officer, Red Cross Building, Lucknow, would remain the convener of the Essay Prize Committee and will receive all the papers and appoint judges to decide to whom the prize should go. The decision of the committee would be final in the matter.

Resolved that the annual general meeting be held in the middle of March next.

Burdwan (Bengal): Meeting held on 27-1-41 with Dr. Satya Charan Maitra in the chair. 20 doctors were present.

Read and confirmed the proceedings of the last meeting held on 12-12-40.

Office-bearers for 1941: Drs. Satya Charan Maitra—President, Prafulla Kumar Bhattacharyya and Binode Behari Banerjee—Vice-Presidents, Gunanandr Mukherjee—Secretary, Anil-mohan Bhattacharyya—Assistant Secretary, Atulpati Banerji—Treasurer, Bimalendu Bose—Auditor.

Executive Committee: Drs. Ahibhushan Mukherjee, B. N. Das Gupta, Chandra Sekhar Chatterjee, Paritosh Kumar Mukherjee, Ajji Kumar Chakrabarty, Tarak Nath Chakrabarty, Joy Gopal Ghosh.

Audited accounts up to Dec. 1940 were passed.

Unanimously resolved that Dr. Kshatragopal Mukherjee be requested to become a member of the Mother Association and his grievance will be considered by the members of this Branch. Further resolved that a copy of this resolution be sent to Dr. Kshatragopal Mukherjee.

The delegates who attended the Bombay conference narrated the proceedings of the same.

Contingent bill amounting to Rs. 2-5-3 was passed.

Rajshahi (Bengal): Meeting held on 21-2-41. 5 members were present. Dr. Madhab Chandra Lahiry was in the chair.

Dr. M. C. Lahiry narrated the proceedings of the Bombay Conference; requested every member to enrol five members at least.

Resolved that the T. A. bill of Dr. Madhab Chandra Lahiry, who attended the 30th Annual Conference at Bombay as a delegate, be passed for payment of Rs. 102-4-6.

Juri Valley (Assam): Meeting held on 8-12-40. 7 members were present. Dr. U. K. Purkayastha presided.

Resolved that this meeting heartily congratulates Dr. A. D. Mukherjee for being elected as President.

Resolved that B. B. Kar be elected as delegate to the annual conference as Dr. U. K. Purkayastha could not attend the same.

Considered General Secretary Circular No. 24 and the members expressed their views.

In order to redress the grievances of the medical licentiates serving in tea estates this meeting requests the delegates to move the following amendments at the annual conference:

(1) Services of the A. M. Os. should be controlled by a Board in which a medical licentiate should be a member;

(2) Service should terminate at the expiry of 30 years or attainment of 60 years of age whichever is earlier;

(3) A. M. Os. should be allowed free private practice or compensation should be given in lieu thereof;

(4) A. M. Os. serving in tea estates should be given the facilities and privileges given to the Indian staff in their respective garden such as bonus, commission, etc.;

(5) A. M. Os. should be granted study leave with full pay.

Prov. Secretary's urgent circular No. 1 was read and appreciated by the members.

Proceedings of the Assam Prov. Conference held at Nowgong on 17-10-40 was read.

Tingri Valley (Assam): Monthly meeting held on 24-11-40 with Dr. D. D. Sarma Baruah in the chair.

Minutes of the last meeting were read and confirmed.

Prov. Secretary's circular No. 1 with the proceedings of the last Assam Prov. Conference were read.

Resolved that the T. A. bill, amounting to Rs. 15, of Dr. M. A. Hazarika, the delegate who attended the said conference, be passed.

The following scientific papers were read and discussed: (1) Course of pulmonary tuberculosis as seen in tea garden practice by Dr. S. C. Dutta; (2) Control of pulmonary tuberculosis in tea gardens in Assam by Dr. D. D. Sarma Baruah; (3) Drugs in the treatment of pulmonary tuberculosis by Dr. A. C. Karmakar; (4) Mr. M. L. Bannerjee read out the laboratory findings of the specimens of sputa collected from tuberculous patients and examined by him at Keybung Laboratory.

2. Monthly meeting held on 29-12-40 with Dr. K. C. Bhattacharjee in the chair.

Minutes of the last meeting were read and confirmed.

The Secretary read out the letter from His Excellency the Governor of Assam, conveying thanks for the Branch's contribution to the War Fund.

Resolved that the contingent bill from Sept. to Dec. 1940 amounting to Rs. 3-0-9 be passed.

Following papers on various aspects of malaria were read in the meeting: (1) Course and progress of malaria by Dr. H. C. Das; (2) Treatment of uncomplicated malaria by Dr. B. N. Chowdhury; (3) Treatment of cerebral and algid malaria by Dr. S. C. Dutta; (4) Individual prophylaxis by Dr. M. A. Hazarika; (5) Prevention of transmission of malaria by Mr. M. L. Bannerjee. Dr. M. L. Bannerjee gave interesting demonstrations on different kinds of malarial parasites under the microscope and of different varieties of mosquito and their larvae. (5) Dr. K. P. Hare spoke on the treatment of malaria and emphasised on the value of education of the coolie population for personal prophylaxis.

Dhubri (Assam): Special meeting to welcome Dr. G. S. Das, the Provincial Secretary was held on 5-1-41. Dr. S. M. Hazarika took the chair. 7 members were present.

Dr. G. S. Das appealed to the members to join the Assn. Resolved that the following office-bearers be elected for 1941: Drs. S. M. Hazarika—President, N. K. Purkayastha—Secretary, M. Ali—Asstt. Secretary. **Executive Committee:** Drs. S. M. Das Gupta, N. C. Roy and the above 3 office-bearers.

Resolved that all the non member licentiates of the district be requested to enlist themselves as members of the Association.

Gauhati (Assam): Monthly meeting was held on 15-1-41. Dr. J. N. Ray Presided. 10 members attended.

Resolved that the members, while recording their deep sense of sorrow at the death of the mother of Dr. Ghanasyam Das, Prov. Secretary, pray for the eternal peace of her soul and further resolved that a copy of the same be sent to Dr. G. S. Das.

Resolved that we learn with much concern all about the case against Dr. Gathpho, lady doctor of Sibsagar, and request the Prov. Secretary to do the needful.

Resolved that we congratulate Drs. Gonesh Ch. Das, Syed Ahmed and Dhakinaranjan Sen for renewing their membership.

Contingent bill for Rs. 14-10-6 was passed.

Dr. A. Bhattacharya read an article on "Back-pain, its causes and diagnosis": interesting discussion took place about asthma.

Dibrugarh (Assam): Ordinary meeting held on 9-12-40. Dr. P. K. Bose presided. 7 members were present.

Minutes of the last meeting read and confirmed.

Accounts for October and November 1940 were checked and passed.

Resolutions to be moved at the All-India conference were discussed.

ACCOUNT OF THE TEA PARTY GIVEN TO MAJOR GENERAL N. M. WILSON AND COL. H. STOTT BY THE MADRAS PROVINCIAL BRANCH A. I. M. L. A. on 20-2-41

Dr. D. V. Venkappa, Provincial Secretary, Madras, rendered the following account in connection with the above function.

Receipts: As per receipt book of Dr. D. V. Venkappa, in which Rs. 11- was collected by Dr. M. V. S. Prakasa Rao 106-0-0; Dr. Prakasa Rao's further collection 9-0-0; Dr. K. Rama Rao's collection, 10-0-0; Dr. U. L. Narayana Rao. 15-0-0; Rs. 140-0-0.

Expenditure: Woodlands, 68-12-0; Petrol expenses, 12-12-0; Car hire, 7-0-0; Printing charges, 4-10-0; Stationery, 1-12-6; Telephone, 1-8-0; Stamps, 3-0-0; Typing charges, 2-0-0; Dr. M. V. S. P. Rao's expenses as per vouchers, 2-8-0; Dr. K. Rama Rao's expenses as per vouchers, 6-5-0; Clerical expenses, 5-0-0; Clerk's bus and tram charges, 3-0-0; Driver for 3 days, 2-0-0; Provincial Secretary's expenses, 18-0-0; Photo, 3-8-0; Balance, 0-4-6; Rs. 140-0-0.

Health of the Indian Army

(A Critical Review)

Dr. V. Krishna Row, L.M. & S., Medical Officer, Presidency College, Madras

The Army Health Report is divided into three sections, each dealing with the health of the British Army, the Indian Army, and special subjects. The last one is viewed as a whole from professional aspect rather than on the basis of two distinct, separate entities (British and Indian troops). Considering the present war time, the increasing transport of troop movements and the increasing recruitment, the health of the army is certainly satisfactory and good.

A comparative statement of the rates of admissions, invaliding and deaths per 1,000 would show that the admissions into the hospitals for sickness are greater, while the invaliding and death rates are less than in previous years¹. This reveals that the efficiency of the fighting forces is well maintained.

The principal causes of sickness in soldiers, under 20 years of age are: dysentery, tonsillitis, minor septic diseases, digestive diseases, malaria, diseases of ear and nose, venereal diseases, sand-fly fever and jaundice.

A study of the invaliding causes² (in the primary order of sequence) in both the British and the Indian personnel, is very useful to the public health worker.

The invaliding causes in the British troops are firstly, mental diseases, secondly, tuberculosis, and then fractures: while those in the Indian troops are primarily tuberculosis, secondarily injuries, and then others.

The chief causes of death in the British Army (in the order of sequence) are:—General injuries, digestive diseases, circulatory diseases, and pneumonia.

In the Indian Army, the causes of death are:—Pneumonia, infectious diseases, circulatory diseases, digestive diseases, injuries, pulmonary tuberculosis, and respiratory diseases.

Pneumonia and infectious diseases are the primary causes of death among Indian troops, whereas general injuries and digestive diseases are the main causes among the British troops.

The digestive diseases have been classified into tonsillitis, pharyngitis, gastritis, dyspepsia, and jaundice. The number affected is increasing annually:—

1937—99.4 per 1,000

1938—113.6

1939—123.5

The British Army is susceptible to general injuries and jaundice. The Indian Army, unlike the former, is susceptible to pneumonia. Why this difference in susceptibility and what are the constitutional factors that result in this difference are worth investigation in determining and comparing the stamina of the British Army with the Indian.

¹ Annual Report on the Health of the Army in India for 1939, Vol. II, Part II, Z-18973/D. M. S. 5.

1. Appendix I.

2. Appendix II.

REJECTION OF ARMY RECRUITS

A comparative statement of the rejection of the Indian recruits would show that the percentage of the disqualifying physical defects is on the increase.

The chief diseases for which British recruits are rejected as permanently unfit are: visual defects, hernia, bilateral rigid flat foot, pulmonary fibrosis, sclerotic periostitis, and low weight below 112 lbs.

The most common causes of rejection of the Indian recruits to the army are: malaria, pulmonary tuberculosis, venereal diseases, defective vision, trachoma, otitis media, valvular diseases of heart, disordered action of heart, varicose veins, pyorrhoea, flat feet, knock knee, skin diseases and poor physique.

The United States Army recruitment reports are compared with the Indian Army Reports, regarding the percentage of rejection due to physical defects (Appendix III-Table II).

The United States Public Health Service has published an interesting report on the summary of defects among men drafted in the World War (Appendix IV). I do hope the Indian health workers including the Army authorities would profit by a perusal of this report.

A comparative study of my College Health Report³ would show that the same disqualifying physical defects are on the increase during adolescence. The Presidency College students come from well-to-do classes. Also the School Health Reports of the premier municipalities in India show the same distressing state of affairs as observed in the Army. It may be safely stated that the same conditions are likely to be observed among the boys in all our schools and colleges.

These physical defects are really remediable. It is needless to emphasise the importance of attacking these health defects in the early stages of life.

The constitution of the adult is affected by the conditions of growth and physical defects found in early childhood. And where the rate of growth has been crippled by physical defects in early life, he cannot grow to maturity with strong lungs and good physique. Consequently, a sickly and medically unfit (C-3) race is nurtured to the final detriment of the nation. As the twig is bent, so grows the tree is a trite expression.

VENEREAL DISEASES

The rate per 1,000 for the British troops has been increasing steadily from 34.5 (1936) to 52.4. (1939). The rate for the Indian troops, during the same period, has been varying from 9.8 to 8.5 (the latter figure being an increase over 1938 rate).

The reasons for this unhappy state of affairs are fully discussed in the Report.⁴

"We bring out young men in the prime of life. We devote all our attention to keeping them fit, with plenty of spare time, and then afford them no feminine society of their own class. No wonder, they succumb to temptation."

"The more one considers the question, the more one is convinced that venereal disease is one of the few diseases, for which the patient is entirely responsible, and in which the medical profession are most helpless. Whatever precautions are enforced and whatever prophylaxis is offered, the final court of appeal is the man himself, who can nullify all these measures by just ignoring them."

4. Appendix III.

6. Pages 41-45 of the Report.

5. Appendix V.

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The worst stations⁷ in India for venereal disease (in the primary order of incidence) are: Hyderabad, Cawnpore, Jullundur, Barrackpore, Jubbulpore, Madras, Karachi, Poona, Secunderabad, Lucknow, Ferozpur, Bombay, Lahore, Calcutta, Wellington, Agra, Bangalore, Meerut, Bareilly and Delhi.

[N. B. In 1938, there were only 13 large military stations, in which the rate of incidence of V. D. was over 50 per 1,000. This year (1939) there are 20 stations.]

It is obvious that the civilian population in these places would be increasingly infected, resulting in their low health and stamina, already bad enough due to other causes.

Therefore, my suggestions are: (i) intensive anti-venereal campaign among soldiers and civilians, (ii) the truth to be brought home that no reliance should be placed on antiseptic or prophylactic drugs to prevent venereal diseases infection; and (iii) health-education programme for the masses.

TUBERCULOSIS

The general opinion is that pulmonary tuberculosis in the Indian military and potential military personnel is not on the increase. The Indian ratio is higher than the British. Tuberculosis alone accounts for a third of the total invalided in the Indian Army. Pulmonary tuberculosis of which there were nearly 220 cases during 1939 has shown a rise of 30 cases, and the highest ratio for the last 9 years. The incidence of tuberculosis among the British and Indian troops shows that "as far as military populations are concerned, there is no steady increase in the disease, which appears to be occurring amongst the civilian population."

HOT-WEATHER CONDITIONS

The management of troops, during hot weather, is of considerable interest to the civil population in the tropics who suffer from the effects of excessive hot weather, heat stroke, and heat exhaustion. Fetish of early rising and close seclusion in the barracks during the day is discountenanced. Food adapted to the season, ample supplies of cool drinking water, exercise, employment out of doors or in-doors throughout the day, and minimum clothing are all methods now being successfully employed during the hot weather to keep men fit, and as preventive measures against heat-stroke and/or heat exhaustion.

In this connection, the use of extra salt is advocated. The increase of sweat during hot weather means an increased loss of heat, which, over the hot weather period, will amount to a serious drain from the body. The loss per day in really hot weather is estimated at nearly $\frac{1}{2}$ oz., whereas the normal day's ration contains only $\frac{1}{4}$ oz. Unless this deficit of nearly $\frac{1}{4}$ oz., is made good, the bodily tone is bound to decrease.

The opinion is expressed that "there is a marked general improvement of bodily fitness by intake of extra salt, the extra salt is definitely appreciated; and the extra salt has a very definite effect as a prophylactic treatment for heat exhaustion and heat stroke."

7. Table 36 of the Report.

The attention of the reader is drawn to the Indian dietary habits in different climates of India and to what use this knowledge could be put to among the civil population to improve the bodily fitness.

CEREBRO-SPINAL FEVER

This epidemic is common among the civilian population. The cases of cerebro-spinal fever in the Indian Army are increasing annually:

Year	1936	1937	1938	1939
Number	16	17	23	28

The causes for this steady increase are well-worth an investigation, and would be useful to the Public Health Departments in controlling the epidemics.

Opinion is cautiously expressed by the Army Health authorities that "there is an obvious correlation between cerebro-spinal fever and rising of relative humidity in climatic changes."

SPECIAL SUBJECTS

Section III deals with special subjects like accommodation, sanitation, anti-malarial methods, dairies, field hygiene and sanitation, control of food supplies including ghee, water supplies, in the army, etc.

New and old type of buildings.—A set of experiments to contrast the internal temperatures and feeling of comfort in the old and new type of barrack and quarter was done during hot weather.

The old types of barracks is favoured as being cooler and more comfortable for summer use, having thick, mud-coated, white-washed walls with deep verandahs compared to the modern fashion of thin, red-brick walls. The old type heats up more slowly, the new type cools quicker. It was shown also that the buildings, so situated and protected by verandahs that they were not heated up by the early morning or late evening sun, were more comfortable both for day and for night.

The question has been whether to prefer "the old fashioned gloomy prison like structures of 30 to 60 years age" or the modern type "with the bright, airy, well-ventilated and open to the winter sun-shine." It appears that provided adequate verandah protection can be given, the modern type is really the better of the two for the army needs.

A well white-washed wall or roof has been shown to be 15° F cooler than one which is dark red, dark green or dark brown and 17° F cooler than a black one.

In these days of rapid growth of concrete structural buildings and houses, the question of white-washing (time-honoured Indian custom) deserves attention.

Enteric Group of Fevers: A very interesting and useful chapter is that dealing with enteric group of fevers and the isolation of Vi antibodies in diagnosed cases of typhoid fever.

Widal reaction is not cent per cent effective. An investigation concerning the production of Vi antibodies in the blood during the carrier stage was undertaken by the army hospitals. Suspensions of Vi strains were used. The investigations centred round: (1) Are Vi antibodies present in the serum of inoculated and uninoculated individuals in health (ii) Are Vi antibodies invariably demonstrable in diagnosed cases of typhoid

DISEASES OF NUTRITION

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

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fever and (iii) from a scrutiny of completed tests, what is the characteristic of the Vi agglutination curve?

There is no well-defined type of curve, as used to be found with "H" agglutination tests in uninoculated individuals. The initial rise may occur within the first week or be delayed until three weeks, or longer.

One feature of the Vi curve in typhoid which seems to distinguish it from the non-specific Vi curves is: "a true Vi curve usually showed a definite rise and fall, though the peak may not be very high; whereas the non-specific curve may be high to start with, but in subsequent tests, showed a gradual or rapid fall—there was no ascending to a peak."

The salient features of the army health activities have been brought to the special attention of the medical profession, the Provincial Governments and the public leaders with the fervent hope that the knowledge thus acquired, would be wisely and profitably used for the improvement of the admittedly low state of health of general population. The high rates of infantile and maternal mortality and the death rate in India and also the low average life of Indians are not at all complementary to the existing health and medical services. These are the indices of the public health activities and problems.

The general physical state of the population has been disclosed by sickness surveys, by examinations for life insurance, for military service, and in industry. The statistics, derived from these sources, show that the average man presents a number of important and common physical defects and impairments, the correlation of which would prove distinctly beneficial.

SUGGESTIONS

We need a State preventive health policy, where there is none at the moment. It was recommended by the Skeene Committee in 1927, that a definite policy should be laid down to improve the physical fitness of the Indians. This still remains a wishful thinking. Not only this, Sir John Anderson, Kt., His Majesty's Lord Privy Seal and Ex-Governor of Bengal, has emphasised that the vast resources and man-power of India should be mobilised for the good of the nation.[†]

The aims and objects of the health policy of all modern countries are: to improve the health of the individual or community life of the future; to insure a better second generation, and a still better third generation; and to promote a healthier and fitter nation and race.*

The health motto of all health activities in other nations: is to cure is the voice of the past, to prevent the divine whisper of to-day.

A well-planned health programme ‡ should include—

I. Facilities for mothers and infants—

- medical care of mothers and new-born infants, either in the home or hospital, by qualified doctors;
- facilities for expert diagnosis at children's clinics;
- medical care is necessary for medical, social and economic reasons.

II. Facilities for the conservation of children's health: Health examination and health supervision, hospital treatment of older children, compulsory scheme of medical inspection, with a definite follow-up policy, and

† Speech reported by Reuter in the "Hindu" October, 26th 1938.

* American Health policy, endorsed by the British Medical Association.

III. Increased opportunities for post-graduates in medical nursing, and medico-social subjects—health education of the community.

The major plans of the national health policy are:

- Regular and systematic medical inspection of all school-children, with a definite follow-up policy, as of uniform application, with the aim to insure their health.*
- Regular and compulsory physical training and exercises after an adequate medical examination, as suits the child's capacity, with the object of increasing the physical fitness.*
- Nutrition policy for every citizen, so that he may have an opportunity of getting a satisfactory diet.** (Opinion is expressed that all other diets, the standard, balanced, adequate, or optimum are of academic interest only).

All these mean money. So do hospitals, the services, agriculture, education, war, prohibition, and other beneficial reforms. When money is found for all these, it should also be found for this vital and major problem. If there is a cut in the public expenditure, or in the salary, or increased taxation, or a political crisis, the whole country is up in arms and demands that something must be done. Why not rise up as one man and demand treatment and improvement of health of the child of to-day, the citizen and prop of the country to-morrow? The present laissez-faire attitude towards the health problems must be abandoned by the leaders, publicists and the Government.

The Army is healthy and physically fit. Can we parallel this record in civil life? My answer is—Yes and beat it too. But it is not an easy thing in a sub-continent. It will need all the resources to adjust and adapt to the varying conditions in the different Provinces and States.

If these vital and imperative reforms are adopted (as they can be), then we have no doubt that we can place India in the forefront of ranks, among nations, healthy and physically fit, most certainly within 5 years from to-day.

APPENDIX I

(i) BRITISH ARMY

Ratio per 1,000 Strength

	Admissions		Invalids		Deaths		Constantly sick	
	1939	1938	1939	1938	1939	1938	1939	1938
Officers ...	425.1	428.9	25.09	15.95	2.14	5.63	14.86	27.61
Other ranks ...	666.1	603.7	9.14	9.85	2.75	2.78	27.96	

(ii) INDIAN ARMY

Officers	...	462.1	386.8	12.36	19.86	3.84	10.4	14.75	...
Other ranks	...	454.0	421.8	6.43	5.83	2.12	2.21	...	...

(iii) SICK RATES FOR FOLLOWERS PER 1,000

	1939	1938
	323.2	272.0

The principal diseases of followers (in the order of sequency) are: malaria, venereal diseases, dysentery, pneumonia, sand-fly fever, and pulmonary tuberculosis.

‡ Report of the Inter-departmental Committee to co-ordinate Health welfare activities (1938). Washington, D. C.

* My article in the Journal of the Madras University, July 1938 and Jan. 1939.

** My article in the Indian Medical Journal. Dec. 1938.

APPENDIX II

INVALIDING CAUSES

(Primary order of sequence)

British Army	Indian Army
1. Mental diseases	1. Pulmonary tuberculosis
2. Tuberculosis	2. Injuries
3. Diseases of joints	3. Diseases of joints and bones
4. Injuries other than fractures	4. Mental diseases
5. Fractures	5. Disease of nervous system
6. Schizophrenia	6. " " eye
7. Diseases of bronchi and bronchioles	7. " " respiratory system
8. " of urinary organs	8. " " digestive " "
9. " " heart	9. " " " "
10. Rheumatism	10. " " teeth and gums
11. Epilepsy	11. " " urinary organs
12. Disordered action of heart	12. " " blood
	13. Venereal disease

N. B.—Pulmonary tuberculosis is responsible for 1/3 of the total invalids in the Indian Army.

APPENDIX III

INDIAN ARMY RECRUITS—DISEASES REJECTING THEM AS PHYSICALLY UNFIT—PERCENTAGE

	1936-37	1937-38	1938-39
Total percentage rejected	36.89%	35.73%	45.4%
Common causes of rejection are:—			
Other defects	11.78%	...	14.1%
Trachoma	4.45%	5.86%	5.6%
Defective vision	1.76%	1.91%	5.0%
Valvular disease of heart	1.70%	1.34%	2.2%
Disordered action of heart	3.62%	4.16%	4.8%
Otitis media	2.29%	2.62%	3.0%
Malaria	2.29%	2.41%	2.4%
Venereal diseases	1.55%	...	1.2%
Varicose veins	1.08%	...	1.9%
Hernia	1.57%	...	0.7%
Pulmonary tuberculosis	0.69%	...	0.2%
Flat feet	...	...	1.3%
Knock-knee	...	...	1.0%
Deformities and curvature of spine	...	...	1.9%

TABLE II

Causes of rejection of recruits to the United States Army, due to physical defects—New York areas (1939)*.

Percentage rejected: 32.5%

Age group 18 to 35 years (unmarried)—school and college graduates, who believed themselves to be physically fit to fight for their country.

The common causes, in the order of their importance numerically are:

Defective and deficient teeth	25 %
Eye defects	21 %
Height and weight stature	15 %
Poor feet	10 %
Ear defects	10 %
Skeletal defects	3.51%
Genito-urinary defects	0.28%
Neuro-psychiatric defects	3.05%
Allergy	2.37%
Heart diseases	1.50%
Glandular diseases	1.41%
Skin diseases	1.18%
Respiratory diseases	0.96%
Miscellaneous defects	2.69%

* J. A. M. A., Vol. 115: No. 15. Pages 1983-84. Oct. 12, 1940.

APPENDIX IV

Summary of Defects among Men Drafted in the World War, in the "second million" after May 1, 1918*.

Total rejection: 21%.

TABLE I

Rate of physical defects for 1,000 drafted men.

The common diseases or defects are—

Infectious diseases	0.604	Circulatory diseases	47.681
Tuberculosis	24.30	Respiratory " "	4.26
Veneral Diseases	7.12	Digestive " "	51.965
Nervous system diseases	14.275	Genito-urinary diseases	2.441
Mental alienation	15.540	Skin & cellular tissue diseases	3.680
Eye diseases	12.381	Bones and organs of locomotion diseases	93.256
Ear diseases	12.897	Congenital malformations and ill-defined diseases	47.055
Nasal diseases	0.866		
Throat diseases	5.710		

TABLE II

Estimated number of defects that will be found in the recruits, by July 1, 1941.

According to the Selective Training and Service Act of 1940 (U.S.A.) 1,200,000 men would have to be examined, to meet the quota of 8,000,000 men (expected by July 1, 1941). On the basis of the World War data, the number of defects, which will be noted among the 4,000,000 men would be as follows:

	Rate per 1000 drafted men
Orthopaedic impairments	105.2
Eye defects	53.5
Cardiovascular-renal diseases	47.2
Defects, not elsewhere classified	36.2
Underweight	29.6
Hernia and enlarged inguinal rings	25.8
Tuberculosis (all forms)	24.3
Defective and deficient teeth	24.2
Nervous and mental diseases	23.8
Ear defects	14.6
Venereal diseases	7.1
Varicose veins, varicocele	6.1
Goitre	5.7
Hypertrophic tonsillitis	3.1
Asthma	2.2

* United States Public Health Service: *Public Health Reports*: Vol. 56, No. 2. (Pages 48 to 52) Jan. 10, 1941.

APPENDIX V

Presidency College Health Examination Report (1939-40)—Madras.

TABLE I

INCIDENCE OF PHYSICAL DEFECTS

	1939-40	1938-39	1937-38	1934-35
	58.00%	39.2%	54.8	28.5%

TABLE II

DISORDERS THAT CAUSE PHYSICAL UNFITNESS (TOTAL NUMBERS)

	1939-40	1938-39	1937-38	1936-37	1935-36
Heart weakness	24	10	12	8	4
Lung weakness	5	2	9	4	2
Poor physique	28	18	9	19	16
Excitable temperament	32	8	8	—	—
Defective vision	47.96%	52.0%	45.1%	—	70.3%
Dental defects	24.76%	22.8%	14.0%	14.0%	—

N. B.—Note the increase of incidence of these physical impairments, the same found in the Army Health reports.

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HORLICKS as an addition to the diet of the expectant mother—

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FOREIGN MEDICAL NEWS

Pharmaceutical Letter from America

(From Our Own Correspondent)

SHORTAGE OF PHARMACISTS

American colleges and universities are not supplying enough pharmacy graduates to meet the replacement demand in the field. Dr. Charles W. Ballard, Dean of Columbia University's College of Pharmacy, declared in his annual report. With about 2,500 jobs for licensed pharmacists available every year through replacements alone he declared, it is hardly likely that the annual output of graduates will exceed 2,000 in the next few years.

The nation-wide reduction in the number of pharmacy students has been caused by increased educational requirements and the general economic situation. The shortage is beginning to give concern to owners of pharmaceutical establishments. Another factor entering into the matter of supply and demand for registered pharmacists is the number of pharmacy graduates entering fields other than retail pharmacy, and this ranges between 20 and 25 per cent of the total output of the colleges. According to reliable sources of information, the total enrolment in all pharmacy colleges in 1939 was about 8,400. There are about 58,000 drug stores in the United States, and the pharmacy law in practically every state requires that a licensed pharmacist actually be in the store when it is open. The probable replacement demand is about 2,500 new licenses annually or about 2.5 per cent of the pharmacists now licensed.

Suitable instruction for operating and plant personnel in the pharmaceutical industry may be included in the education programme. In certain instances, Dean Ballard said, the chemical engineer is now preferred for such positions chiefly by reason of his familiarity with plant equipment and operation and despite a lack of knowledge of pharmacy. Opinions from plant executives indicate that the industry could use pharmacy graduates to better advantage if they possessed a knowledge of basic operations and plant equipment. Furthermore, the operation of the present food and drug laws will undoubtedly necessitate a greater knowledge of pharmacy on the part of those engaged in the manufacture of medicinal products.

Pharmacy colleges face a difficult problem because of the peculiar combination of business and professional aspects involved in the conduct of the drug store. Increasing interest in the instruction in the pharmaceutical aspects of medication for medical groups, shows the need for research to improve teaching on the applied side of pharmacy, which is the actual administration of drugs.

BARBITURATE POISONING

The therapy of barbiturate poisoning has been revived by Dr. B. Fantus, late director of therapeutics at the Cook County Hospital in collaboration with Dr. R. K. Richards. The fatal dose is in general from 15 to 30 times the therapeutic dose. The dose of barbital which is nearly always fatal is about 10 gm., that of phenobarbital from 6 to 8 gm. and that of dial about 2.4 gm. The mortality rate may exceed 20 per cent. Symptoms of barbiturate poisoning generally continue for several days before death or recovery take place.

The following procedure is recommended when a patient is admitted to the hospital in the stage of coma. 1. Evacuation of the stomach; if trismus is present the duodenal tube should be passed through the nose. Lavage with potassium permanganate solution 1:5,000 may be useful against some barbiturates even when the poison has been taken many hours previously. 2. Postural drainage should be maintained continuously. If the patient is cyanotic, oxygen should be administered by a nasal catheter. 3. Feeding should be done through the stomach tube at intervals of every four hours, with two cups of not excessively hot strong coffee with some milk. Intravenous injections of hypertonic solutions, i. e., 25 per cent dextrose, are often helpful.

4. Stimulants should counteract the depressant action of the barbiturates on the central nervous system. Picrotoxin in doses from 6 to 12 mg. intravenously is used as a 0.3 per cent solution, each cubic centimeter containing 3 mg. Picrotoxin treatment should not be started without having a soluble-barbiturate such as pentobarbital sodium, pentothal sodium or amytal available for intravenous injection in case severe convulsions develop. Metrazol is a stimulant almost as powerful as picrotoxin but does not seem to be quite as prolonged in its action clinically. Several cubic centimeters of the 10 per cent solution intravenously at intervals until the desired effect is reached—afterward, intramuscular injection can be resorted to. Strychnine nitrate 2 mg. hypodermically every hour or two seems inferior to picrotoxin or metrazol. Caffeine with sodium benzoate can be given in repeated doses of 0.5 gm., intramuscularly because of its favourable effect on diuresis and the heart muscle.

5. Diuresis may be helped by a xanthine diuretic, e. g., aminophylline in doses of 0.25 gm. in 10 c.c. of water, which may be given in dextrose infusion, possibly every 8 hours. Catheterisation every 4 to 10 hours.

6. Application of external heat keep the temperature from falling.

DRUGS AND URETER

It is a difficult problem to affect the ureter by drugs, and yet it is a very important one particularly in the case of calculi. Carroll, Lewis and Kappel, of St. Louis University School of Medicine, recently gave a report to show that, both experimentally and clinically, certain drugs have the power of expanding and contracting the ureteral tube. The goal to be attained by drugs affecting the ureter are: 1. To increase or decrease the caliber. 2. To increase or decrease motility and 3. To release spasm.

If the caliber of the ureter can be increased below a stone caught in the ureter, no instrument is necessary for its removal. If a megalo ureter can be reduced by medication, stasis and infection are lessened. If drugs increase the flow of urine by increasing the motility, infections can be lessened; and stones lying in the ureter may be expelled by the vis a tergo if motility in the ureter is increased. The objective of releasing spasm is relief of pain and also release of back pressure of urine.

NOTICE

The next session of the All-India Institute of Hygiene and Public Health, Calcutta, will commence from the 1st July, 1941.

Applications from intending candidates for the ensuing D. P. H. course of the Calcutta University and D. P. H. & Hy. of the Faculty of Tropical Medicine and Hygiene, Bengal, will be received up to 31st May, 1941.

Only candidates possessing M. B. or L. M. S. of the Calcutta University or holding equivalent qualifications of one year's standing at the time of application are eligible for admission to the D. P. H. course

For forms of application and prospectus please apply to the Director, All-India Institute of Hygiene and Public Health, 110, Chittaranjan Avenue, Calcutta.

Adv.

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OUR GENERAL LETTER

BASIS OF SICKNESS INSURANCE SCHEME FOR INDIA

"Before proceeding with any scheme of sickness insurance, the Government of India must undertake preliminary actuarial investigations by competent persons of practical experience," says Mr. J. H. Thomas, Superintendent of Insurance, in a Note circulated to the members of the Second Labour Conference which met at Delhi on January 27 and 28. Such investigations, he says, preceded the adoption of the National Health Insurance Scheme in the United Kingdom.

"The most baffling difficulty before those who conduct these investigations," Mr. Thomas points out, is the absence of existing rates of sickness, issue and mortality on which to base the estimates. It is quite evident that British rates will be useless as a guide and though it may be found on enquiry that some Indian institutions or organisations may have statistics to offer, it is necessary to bear in mind the psychological phenomenon proved by experience that sickness rates derived from the experience of a certain body of persons when there was no sickness benefit payable, undergo considerable and unfavourable change when the same body of persons become eligible for benefit of some form or another.

It may be stated as a corollary to this that no scheme should provide benefits which make it as profitable to malinger as to be at work, and in assessing 'profits' for this purpose, the case must not be overlooked of the man who prefers idleness under the guise of sickness with small cash compensation to work with full wages."

Mr. Thomas sketches the main characteristic of the United Kingdom scheme and says: "It will be observed that the cardinal principle on which it is founded is financial soundness, as a result of which no burden falls on the State apart from the freely assumed obligation to contribute a fixed percentage of the actual benefits paid and the cost of the Central administration. Before profitable investigations can be undertaken, the broad outlines of the scheme desired for India must be decided upon. I would stress particularly the need for simplicity and for confining its scope in the first instance to a few of the better-organised industries, but these must nevertheless be those not subject to seasonal employment.

"Finally, I may add that, however skilled the persons engaged to conduct the preliminary investigations may be, their task in this country where there is no known experience on which to work will be of the greatest difficulty, and after a few years of working, the scheme may be found to require even considerable adjustment to maintain solvency. It should, therefore, be contemplated clearly as experimental in its early years."

SIR HYDARI INAUGURATES THE HYDERABAD MEDICAL COUNCIL

"The higher the standards of the profession the greater will be the weight of your representations in the scientific world. You would be well advised to insist on a combination of idealism and realism and in the result your efforts will win you the gratitude of the general public and redound to the credit of the State."

Thus observed the Rt. Hon. Sir Akbar Hydari, President of H. E. H. the Nizam's Executive Council, inaugurating the Hyderabad State Medical Council on Jan. 27, '41 at the office of the Medical Directorate.

Doctor Hyderali Khan, Director of the Medical Department, requesting Sir Akbar to inaugurate the Council, observed that the Hyderabad Medical Registration Act No. 1, 1348 Fasli, was passed as it was considered expedient to provide for the registration of the names of medical practitioners practising the allopathic system of medicine in the Nizam's

Dominions. No practitioner who had not been so registered shall claim any charges in any court of law for any medical or surgical advice, attendance or for the performance of any operation nor hold an appointment in Government or Government-aided institutions.

In the course of his speech, Sir Akbar said that the establishment of the Council was a notable landmark in the progress of the organisation of medical relief in His Exalted Highness' Dominions as their Council would regulate the practice of scientific allopathic medicine and will also be in contact with the Medical Councils in other parts of the world in regard to the recognition of medical qualification on the basis of reciprocity. The scope of their duties covered a very wide and useful field and there was only one avenue of approach to the achievement of success and that was the establishment of traditions for the medical profession in Hyderabad on the highest possible standard.

Sir Akbar assured that the needs of the Medical Council for staff would always have the sympathetic consideration of the Government.

After Sir Akbar had delivered the speech, Doctor Lateef Sayed, on behalf of private medical practitioners present at the function, expressed protest against the attitude of the Medical Department in forming this Council without consulting private medical practitioners and staged a walk-out with them to demonstrate their feelings in the matter.

Resolutions approving the action of the independent medical practitioners in staging a walk-out at the inauguration ceremony of the State Medical Council, strongly resenting the inclusion of a non-medical man in the State Medical Council, and recording their strong protest against the Medical Council as at present constituted were adopted at a meeting of the independent medical practitioners of Hyderabad and Secunderabad held on Feb. 5-2-'41 at the Y.M.C.A. Narayanaguda under the chairmanship of Dr. G. K. Kirlsker.

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The meeting passed a resolution assuring the President of the Executive Council that the independent medical practitioners did not mean any disrespect to him by staging a walk-out at the inaugural function of the State Medical Council, but that it was the only way left to them to express their resentment at some of the decisions of the organisers of the Council. The meeting stated that such of them who had so far not applied for their registration did not do so merely because they were waiting for the formal action of the authorities concerned in inviting the general medical practitioners not only to register themselves but to elect their representative or representatives to the Council and that they were quite willing to do everything necessary to have their names placed on the register, provided they were assured that their representation would be brought about in a proper manner.

The meeting appointed a Committee, consisting of Dr. Lateef Sayed, Dr. G. S. Melkote, Dr. Ramachandran, Dr. Abdul Hye, Dr. Jayasurya Naidu, Dr. Sharma and Dr. Jehangir to draw up a brief memorandum explaining such of the parts of the resolutions as required further elucidation in the light of various clauses of the Act and its bye-laws and urged that the memorandum should be made available to every member of the independent medical profession.

SIR SULTAN AHMED'S APPEAL TO DOCTORS

An appeal to the physicians and surgeons in the country to take to manufacture of drugs and instruments of surgery on a commercial basis was made by Dr. Sir Sultan Ahmed, a member of the Board of Scientific and Industrial Research, while opening the Patna Medical College scientific exhibition on Feb. 25-'41.

Sir Sultan regretted that in spite of India being rich in herbs and minerals, she spent about Rs. 3 crores and twenty lakhs on the import of medicines. Production of medicines on a mass scale could be undertaken, he observed, only when there was sufficient patronage from the Government. He said that this aspect of the question was being considered sympathetically by the Commerce Member to the Government of India, Sir Ramaswami Mudaliar.

Sir Sultan suggested that Indian doctors should widen the scope of their activities by going into slaughter houses for living pancreas, etc., or to the sea for shark liver oil, or by making patent preparations for ailments like anaemia, diabetes, etc. He hoped that within a reasonable time India would be self-sufficient in medical and surgical products and would produce cures suited to the pockets of all citizens.

MANUFACTURE OF SYNTHETIC DRUGS IN INDIA

Dr. D. B. Dey, Professor of Chemistry, Presidency College, Madras delivered a series of three lectures, during January 1941, on "The making of Medicinal Chemicals, Natural and Synthetic and the possibilities of their production on a commercial scale in India". Following are extracts from his lectures.

In the course of his lecture, Dr. Dey pointed out some of the outstanding results obtained by chemists in the field of synthetic drug preparations and classified the common medicinal chemicals into two main sections, those which aimed at establishing an abnormal condition of the body and to which belonged the various general and local anaesthetics employed for surgical purposes, and the narcotics for the production of prolonged sleep or the deadening of nervous agitation and pain, etc., and those which served to correct an existing pathological condition among which could be recognised several distinct types, *e.g.* (a) replacement drugs consisting mainly of animal organ extracts such as insulin, thyroxin, oestrin, etc., (b) antiseptics, (c) anti-pyretics, (d) hypnotics which acting on various nerves restored their normal condition, etc.

Dealing with general anaesthetics which were grouped as (a) chlorine anaesthetics, (b) bromine anaesthetics, (c) urea anaesthetics and (d) ethyl anaesthetics, Dr. Dey mentioned the possibilities of manufacturing some of the more important drugs of this group in India, Chloroform, chloral, chlorotone and ethyl chloride were imported at present not in pounds but in tons and since the preparation of these chemicals depended on intermediates such as alcohol, chlorine, electrolytic bleaching powder, acetone, etc., all of which were now obtainable there was no reason why their production on a large scale should be postponed any longer; their manufacture might be protected after the War, if necessary, by special tariffs. The bromine anaesthetics such as bromural, adalin, etc., were more difficult to make and necessitated the development of a more advanced chemical industry than existed in the country at present. But an earnest and co-operative effort should now be made in this country to manufacture the starting material, bromine itself or bromides, by working up the "bitterns", the mother liquor left from the manufacture of common salt which were thrown away by the blunderbuss methods adopted by the lay people who commonly own salt pans in this country. Dr. Dey also referred to veronal and allied products which had come to be used extensively in this country, the possibilities of preparing which from the materials available in the country he fully discussed. He then considered the local anaesthetics which differed from the general anaesthetics in having no action on the unbroken skin, but producing anaesthesia only on coming into contact with the peripheral nerves of the system by means of injections and explained in detail the commercial processes for preparing some of the more important members of this group, such as cocaine, beta-eucaine, novocaine and others.

Referring finally to the narcotics made from opium, which was an important product of this country, Dr. Dey said that there should not be any great difficulty in getting all their requirements of such valuable drugs as morphine, codeine, dionin, heroin, apomorphine, eucodal, etc., made from indigenous opium, and thus making ourselves independent of all foreign imports.

Delivering his second lecture on the possibilities of commercial production of synthetic and natural medicinal chemicals, Prof. B. B. Dey said that the economic production of most of the synthetic compounds resembling quinine, pyrimidin, phenacetin, phenocoll, salipyrin and other members of this group in India would be possible only, if and when the coal tar produced in the coke ovens of the factories in India were worked up to their valuable contents of benzene, toluene, phenols, etc.

Although some of these were just beginning to be produced in India, the quantities were too small yet to enable a synthetic drug industry, based on coal tar intermediates, being established in the country.

With regard to quinine, Prof. Dey said, the most widely used anti-malarial drug, the bark of the cinchona plant still continued to be the raw material for its preparation, as quinine had not yet been synthesized in the laboratory. The Government plantations at Mungpo near Darjeeling and at Naduvattam near Ootacamund were the only sources of the bark in India. There was, however, ample scope for private enterprise in this field both in the starting of plantations for which suitable climatic and soil conditions were to be found in several parts of India, and also in the manufacture of the finished drug for which the essential chemicals required for extraction were available in the country.

Taking into consideration drugs like caffeine, theobromine, theochin, piperazine, urotropine, atophan, etc., which were used either as diuretics or as uric acid solvents in gout and other diseases, Prof. Dey explained the processes used in their manufacture and said that although caffeine was being made on a small scale by the Bengal Chemical and Pharma-

ceutical Works in Calcutta, its production in sufficient quantities so as to make imports of the drug quite unnecessary in future should be easy in view of the fact that large amounts of tea dust which formed the raw material in its manufacture were actually being exported from India at a very low price. Similarly, urotropine, neo-urotropine and other drugs of this group which required formaldehyde as the essential raw material could be produced in India as soon as an efficient economic process could be worked out for the catalytic oxidation of methanol which was now obtained in large quantities as a by-product in the Mysore Iron Works at Bhadravati.

Prof. Dey next described the preparations of saccharin so largely used by diabetic patients as a substitute for sugar and of insulin and showed a specimen of pure crystalline insulin hydrochloride prepared from beef pancreas in the College laboratory. He also gave an account of the drugs used for the treatment of leprosy which consisted principally of the oils of chaulmoogra and hydnocarpus seeds which grew in plenty in India and were exported in large quantities. The acids (chaulmoogric, hydnocarpic and gynocardic) and their salts and esters, he said, could all be prepared from these oils and used for injections both in this country and abroad.

The lecturer gave an account of the manufacture of disinfectants and antiseptics. He said that, while the antiseptic properties of phenol, cresols, thymol, etc., and of reduced phenols like menthol, as well as those of inorganic compounds such as permanganate of potash, hydrogen peroxide, mercuric chloride, etc., had long been known and the knowledge fully exploited in the manufacture of various antiseptic preparations for the market, for example, lysol, Condy's fluid, etc., new groups of chemicals, many of which were dyestuffs, had now been introduced into practice on account of their remarkable bactericidal action against specific germs and bacteria in the living cells and in blood. Systematic studies had now been carried out of the antiseptic properties of various members of the phenol family. The manufacture of these should, therefore, be possible as soon as the Tata scheme for preparations of phenol, etc., from coal tar on a large scale at Jamshedpur had materialised.

Dr. Dey in this connection emphasised the importance of establishing a large coal-tar fractionation industry in this country as a *sine qua non* for the manufacture of these antiseptic drugs.

In conclusion, Dr. Dey described the group of chemical remedies commonly known as anthelmintics used for removing intestinal worms. He said that it had been estimated that in many parts of our country as much as 90 per cent of the population were infected with one or more types of these worms, the diseases being termed ascariasis, ankylostomiasis, etc. The common natural medicines, ascaridol and santonine, were made from plants some of which grew in parts of India. Thus 'artemisia maritima' and 'artemisia sinna', the flower heads of which were the sources for the preparation of santonine, were found to grow abundantly in Baluchistan. Synthetic compounds like hexyl resorcinol and carbon tetrachloride were also frequently used and these could be prepared, once a fine chemical industry had developed in India.

RETIRED DOCTORS AS HOUSE-SURGEONS

Recently there appeared advertisement in the Madras Dailies calling for applications from Retired Government Medical officers for employment as House-Surgeons in the Madras Tuberculosis and Mental Hospitals on a honorarium of Rs. 25/- and Rs. 35/- per p. m. respectively. This is indeed an ingenious method of effecting economy in hospital expenditure without sacrifice of efficiency, but this is by no means just or fair to freshers from the colleges for whom the house surgeonships are usually meant and reserved.

OUR BOMBAY LETTER

BOMBAY MEDICAL COUNCIL: DR. CURSETJI EXPRESSES REGRET

Your readers are aware that Dr. J. J. Cursetji of Bombay wrote an article in the February '39 issue of the *Insurance World* where he made certain statements which were objected to by a large section of the Indian Medical Profession. *The Indian Medical Journal* had in its May 1939 editorial expressed its opinion on the letter. Dr. U. B. Narayanrao, a Member of the Bombay Medical Council, gave the information to and let evidence before the Council to show that the said article was derogatory to the dignity of the medical profession generally and that certain statements made therein were improper, untrue and misleading. Dr. Cursetji was accordingly hauled up before a meeting of the Council, which was to consider the charges against him and decide whether or not the Council should direct his name to be removed from the Bombay Medical Register. I am glad that wiser counsels prevailed and Dr. Cursetji expressed his regret for the statement made by him, which was accepted by the Council in its February meeting.

Though the code of Medical Ethics accepted by the various provincial Councils are almost uniform, it is common knowledge that it is differently interpreted by different Councils. For example, the local council has decided that no registered medical practitioner should be a director or even a share-holder of any firm manufacturing medical requisites, while to my knowledge, no other Council does so. I personally feel that this decision of the local Council is not in the interest of the profession and therefore regret to note that a very modest resolution moved by Dr. Narayanrao to have a conference of representatives of all the provincial Councils to discuss this important question was thrown out. I hope that members of all other Councils would take up this question in right earnest.

TATA MEMORIAL HOSPITAL FOR CANCER

Bombay has reason to be proud of the New Cancer Hospital which was recently opened by His Excellency Sir Lumley who described it as "one of the best equipped institutions in the world".

Dedicated to the study and treatment of cancer, this carefully constructed, excellently equipped and well staffed institution is the bounty of the Tatas—in memory of one of their illustrious member, Sir Dorabji. Our country, where it is said that one in 12 males and one in 8 females fall a prey to this fell scourge, will be immensely benefited by this great munificence.

SULFATHIAZOLE MADE IN HAFFKINE INSTITUTE

Sulfathiazole manufactured in this institute has been tried in plague cases in the Plague Hospital, Latur, (Deccan) and at Bettiah at Bihar with cent per cent success in non-septicaemic and 80 per cent in septicaemic plague. Arrangements are being made to manufacture the drug on a large scale and market it at about Re. 1/- per 60 tablets.

BOMBAY MUNICIPALITY

Recently the municipality rejected a resolution suggesting the inauguration of educative propaganda for birth control in the City. Another resolution refers to levy of taxes on professions: Doctors, priests, authors, editors, sculptors, midwives, nurses, palmists and all that motley crowd. Dentists are to pay a flat rate of Rs. 20/- per annum. Hakims, Vaidyas, Homeopaths and bonesetters, Rs. 10. Practising Physicians and Surgeons are to be charged according to a graded scale. You, Mr. Editor, will realise what the profession is thinking of these two resolutions.

Epitome of Indian Medical Literature

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(1) Napier, as a result of the treatment of 36 cases of hook-worm anaemia, comes to the following conclusions: (i) Anthelmintic treatment without iron treatment is of little value. (ii) Even in a very anaemic patient, a return to the normal hemoglobin level can be achieved by treatment with iron alone in most cases, but this level will not be maintained unless the hook-worms are now removed. (iii) A slightly better response to iron treatment will be obtained after deworming but the difference does not justify the risk of treating a patient with a very low haemoglobin level by anthelmintics.

(2) Summarising the results of chemotherapeutic treatment of plague, Wagle and others write:

(1) A report of treatment of 237 cases of plague with the Haffkine Institute antiplague serum, sulphapyridine and sulphathiazole in an epidemic at Bettiah is given.

(2) In all cases taken together without differentiation into septicaemic or non-septicaemic cases, the case mortality in the serum, sulphapyridine, and sulphathiazole treatment was 28 per cent, 24 per cent, and 15 per cent, respectively, as against 52 per cent in the controls. These reductions in case mortality are statistically significant, but not so the differences in the results of these different treatments.

(3) Even in those severe cases in which septicaemia was present at the commencement of treatment all the three forms of treatment reduced the case mortality from 95 per cent in the controls to about 50 per cent in treated cases.

(4) Six cases of primary pneumonic plague are reported.

(5) The question of dosage employed has been discussed and it is suggested that a larger dose especially of the sulphanilamides used would reduce the case mortality still further.

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(3) Krishna Rao writes that since scorpion poison is acid in reaction, it may be rendered neutral and

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(4) Sovani writes that the onset of deficiency symptoms are often insidious, but the following are commonly complained of:—

(1) Stomatitis with affection of the lips and the angles of the mouth. Red patches on the tongue: red border and tip with soreness of the tongue.

(2) Skin may become thick and coarse with decreased activity of sebaceous glands: formation of pavement like patches of skin in various parts, with dryness and scaling. Irregular patches of pigmentation in exposed parts like, cheeks, nose, back of hands and neck, shins and dorsum of feet. Haemorrhages in superficial layers of the skin or mucous surfaces.

(3) Neuritis of various types—tingling and numbness in hands and legs, burning sensation of palms and soles and in pit of stomach and throat. Vague pains in joints and around them: muscular pains and cramps; general muscular exhaustion. In advanced cases paresis or paralysis is present and cases of myelitis in early stages are not uncommon.

(4) Spongy gums: pain along oesophagus and on deglutition: bleeding from mucous surfaces or under them in patches. In pregnancy and in nursing periods burning in pit of stomach is very common.

(5) Petechial haemorrhages, diarrhoea alternating with constipation; anorexia followed by voracious appetite, loss of strength and a feeling of exhaustion and palpitation, breathlessness and insomnia.

He also gives an useful summary of literature of some important aspects and recent advances on vitamin therapy:

The first two, A and B are too well-known to need description in detail. Vitamin A—essential for satisfactory growth; increases resistance against bacterial infection; prevents xerosis and hyperkeratinisation—toadskin: night blindness: Vitamin D—Antirachitic: absorption of phosphates helped, incidence and progress of caries of teeth prevented: prevention and cure of allergy and arthritis. Osteomalacia.

Vitamin B₁ or Thiamin chloride or aneurin—curative in beriberi: symptoms in severe forms affecting peripheral nerves and characterized by symmetrical neuritis and degeneration with atrophy of muscles supplied by these nerves; cardio-vascular system: as seen in symptoms like oedema, dilatation of the heart, rapid pulse, high venous pressure.

There is long period of ill-health characterised by prodromal symptoms like loss of weight, strength and appetite, periodic vertigo, burning sensation in various parts of the body, nervousness, numbness, loss of sensation in extremities, cramps and tenderness of muscles.

Therapy B₁ is curative in neuritis in any condition—pellagra, beriberi, pregnancy. Synthetic B₁ equally useful: also useful in gastro intestinal dysfunction from B₁ deficiency. It increases carbohydrate tolerance: increases appetite, strength, and feeling of well-being in sub-clinical deficiency.

Nicotinic Acid—Its amide and other compounds: very useful in early and well-established pellagra symptoms: characterised by affection of gastro intestinal tract, skin affection i.e., pigmentation, thickening, and nervous symptoms with affection of mucous membrane any where, e.g., glossitis, sore margins and tip of the tongue, stomatitis, gingivitis: lesions of mucous membrane are sometimes infected with Vincent's organisms: nausea, vomiting, ptyalism, abdominal distention. Dermal symptoms are bilateral and symmetrical and sharply demarked from surrounding healthy skin. Pellagrins show severe mental symptoms in advanced stages of the disease: these are apprehension, confusion, disorientation, hallucination, mania and delirium.

Initial stages are marked by lassitude, loss of weight and strength, nervousness, forgetfulness or hyperaesthesia to all sensation, increased psychomotor symptoms, anxiety, apprehension, weariness, sleeplessness, increased fatigue, headache

Adequate doses will restore to normal most of these if these are not too chronic. It must be pushed to effect.

Riboflavin, B₂ lactoflavin—deficiency characterised by lesions at corners of the mouth, erosions round eyes "Shark skin" over nose and eyes. Itching, burning sensation and dryness of eyes, photophobia, granulation, extreme redness of conjunctiva of lower lids, are common. These are associated with keratitis.

Administration of B₂ increases vigour, sense of well-being, and relief of all these symptoms. It helps the action of nicotinic acid in treating pellagra conditions.

B₆ Pyridoin—necessary for human nutrition. Its deficiency leads to extreme nervousness, insomnia, irritability, cramping pain in stomach, muscular rigidity and difficulty and awkwardness in walking: all these respond very well to B₆. Also helpful in relapses of pernicious anaemia. 'Intravenously B₆ has given improvement in epilepsy and amyotrophic lateral sclerosis and in myasthenia gravis.' In Parkinsonism post-encephalitic there was rapid improvement 'in a few minutes after injections,' sedative effect is responsible for the improvement observed.

Vitamin K is essential for maintaining prothrombin level in blood. Presence of bile in intestine is necessary for absorption of this vitamin. In extensive lesions of intestinal surface absorption of vitamin K interfered with or absence of bile also may cause a similar condition. Bile salts therefore should be administered with vitamin K.

Vitamin E: Alpha-tocophoral: reproduction and inadequacy are closely related; useful in sterility. Deficiency is also closely related with atrophy of striated muscle.

Intra-muscular injections of alpha-tocophoral i.e. synthetic vitamin E restores: such condition also in amyotrophic lateral sclerosis; beneficial effects are seen immediately after intramuscular injections of (500 mg. in oil). Such doses also relieve neuromuscular symptoms like roaring in ears, anorexia, insomnia of malnutrition.

Yeast—adenlyc acid—symptoms not relieved by nicotinic acid, riboflavin, thiaminchloride, B₆ are relieved by adenlyc acid by large doses by mouth (200 mg.) I.M. injections in small doses even produce some untoward symptoms.

Pantothenic acid is important in human nutrition. This acid is deficient in blood in pellagra.

Vitamin C—Fresh fruit and vegetable long associated with scurvy. Now isolated as ascorbic acid and prepared synthetically and can be used in form of tablets.

Useful in scurvy and prescurbutic conditions: also in febrile conditions and in capillary fragility.

Vitamin Therapy—In mild and moderate cases of mixed deficiencies dry powdered yeast 75 to 100 grams or liver extract 75 to 100 grams or wheat germ 150 grams daily should be given orally to supplement that diet.

Yeast and wheat germs have an advantage over pure chemicals as nicotinic acid, B₁ Riboflavin, B₆ as well as minerals proteins, enzymes, salts and their unknown essentials. Administration of water soluble vitamins together and of fat solubles together should have a well-balanced high caloric diet.

Beri-beri—moderate cases—20 mg. of B₁ of thiamin chloride daily.

Severe cases—50 to 100 mg. of thiamin chloride daily in divided doses.

10 mg. per day enough in mild cases.

Parenteral administration better in acute cases as massive doses are easily administered thus and there is certainty of absorption and rapid improvement.

Pellagra—Nicotinic acid and its derivatives orally or by injection. Severe cases may require as much as 500 mg. daily in 50 mg. doses. Sometimes as much as 1000 mg. in one day may be required. Parenterally 50 to 80 mg. intravenously in 15 mg. doses very effective. Nicotinic acid amid, does not produce vasodilatation of skin as in nicotinic acid alone.

Riboflavin—3 to 5 mg. orally per day is effective. Oral method is better.

ABSTRACTS

CHOICE OF ANTACIDS FOR TREATING PEPTIC ULCERS:

Manfred Kraemer writes in the *Digest of Treatment*, October 1940: Certain individuals develop peptic ulcer and even though the ulcer heals, recurrence in these susceptible persons is likely. The first attack of ulcer and the early recurrences are easily controlled by dietary measures, rest, sedatives, and antispasmodics. If the patient is taught permanently to live within his physical, mental, and digestive capacities and if he is co-operative enough to give up smoking, to eat six times a day and solve or resign himself to his financial, sexual, and emotional problems he may never have a recurrence.

In the unco-operative or neglected ulcer patient alkalis find their greatest use. When all other methods fail constant neutralization of the gastric contents 24 hours a day results in freedom from pain in one day and ulcer healing in four weeks.

No ideal antacid has been discovered. Many have been suggested and tried. An ideal antacid should be tasteless and cheap. A small amount should neutralize considerable acid. It should be neither constipating nor laxative. It should be insoluble, so as not to leave the stomach too quickly, and it should have a prolonged action and not produce a secondary acid rise. It should be unabsorbable so that alkalosis cannot occur. To avoid belching or distension, carbon dioxide gas should not evolve after it reacts with hydrochloric acid.

A list of those antacids commonly employed for treating peptic ulcers and their advantages and disadvantages are:

1. *Sodium Bicarbonate* being soluble in water leaves the stomach too quickly. Sodium ion is absorbed and in the presence of kidney disease alkalosis may result. In susceptible persons it causes diarrhoea. On interaction with the gastric hydrochloric acid, carbon dioxide is released with subsequent intragastric tension and belching. It stimulates a marked secondary acid rise. Bicarbonate of soda should not be used for treating peptic ulcer.

2. *Magnesium oxide* is the most powerful antacid. It causes the highest secondary acid rise. It is laxative. It can be supplanted with Magnesium Trisilicate.

3. *Magnesium carbonate* is also laxative and causes a secondary acid rise. The evolution of carbon dioxide gas is a decided disadvantage. Its use can be discontinued.

4. *Calcium carbonate* is a good antacid and were it not for its constipating action and for its release of carbon dioxide in the stomach, it would approach the ideal in antacid therapy.

5. *Sodium and potassium citrates* have little neutralizing power. They are valueless in treating peptic ulcer.

6. *The tribasic phosphates of calcium and magnesium* are inefficient antacids. They may produce alkalosis and constipation or diarrhoea may result from their use. They could be abandoned.

7. *Bismuth salts* also have little neutralizing value and are constipating. They were supposed to cure peptic ulcer by a protective coating over the ulcer base. This impression is erroneous. Sippy originally used bismuth subcarbonate in his "A" powder, but he recognized the disadvantages of this salt and substituted calcium carbonate. Blind adherence to custom perpetuates the use of bismuth salts. Powder "A" in most hospitals is still a mixture of bismuth subcarbonate and soda bicarbonate. The use of bismuth salts for treating peptic ulcer should be abandoned.

Vitamin K—1 to 5 mg. daily with bile salts to make sure of absorption.

B₆—50 mg. in sterile normal saline by parenteral method: further study required before its free use.

Vitamin E—Synthetic alpha-tocophoral in sterile oil intramuscularly: 50 mg. relieves muscular pains, cramps, and weakness.

Vitamin C—'A daily intake of 15 mg. of ascorbic acid can protect the majority from scurvy.'

Further addition to diet did not lead to any noticeable improvement in health nor did such an addition diminish incidence of infectious diseases nor was dental health or physical efficiency improved.

Minimal rations however did not protect against infection. There is no correlation between clinical findings and detection of vitamin C deficiency. Depletion of vitamin C has not yet been shown to have an adverse effect on the health or efficiency of the individual concerned.

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(5) Basu is of the view that cow's milk would be the best and well tolerated infant food. But he recommends that it should be supplemented with iron, copper and vitamin C, and that, since the amount of vitamin A and D is variable, it should not be left to chance but ensured by mixing the milk with cod liver oil or the like.

8. *Aluminum hydroxide gel* is extensively employed to treat ulcer. Despite contrary statements in the literature its absorptive power is nil, because on interaction with hydrochloric acid it is changed to soluble aluminum chloride. For the same reason it cannot promote ulcer cure by coating action. It is a poor antacid and if used in sufficiently large amounts to obtain intragastric neutrality, constipation results and faecal impaction is not uncommon. Aluminum hydroxide gel may be efficacious even if used in amounts inadequate for neutralizing gastric acid. I believe that the improvement in ulceration is due to astringent action both of aluminum hydroxide and of the aluminum chloride formed. A disadvantage of aluminum gels is that they are too expensive for constant and routine use.

9. *Magnesium trisilicate* has recently been introduced for treating peptic ulcer. It is a tasteless powder and is very inexpensive. It is insoluble in water, has a prolonged antacid action, and a good neutralizing action. Since magnesium is unabsorbable, alkalosis cannot result. In susceptible individuals it may cause an increase in frequency of bowel movements.

Severe cases of ulcer should be hospitalized. Milk and antacid are fed hourly night and day. Cream is so poorly tolerated that I have discontinued its use. After a few days, pudding and purees are added to the diet and the number of feedings slowly decreased. Hospitalization should last four weeks and home convalescence, two to four additional weeks. By the end of this time the patient is on a fairly complete diet but permanently avoids spices, condiments, excess roughages, alcohol, and tobacco, and takes a glass of milk between meals and at bedtime.

In milder cases the following diet is prescribed. Where "antacid" is indicated the patient takes a dram of the selected antacid. I usually prescribe magnesium trisilicate. The liquid medication is a mixture containing one half grain of soluble phenobarbital and ten minims of tincture of belladonna to the dose. If the patient has night pain he is instructed to set his alarm clock for an hour before pain is anticipated, and to drink a glass of milk with a dram of powder at that time.

CLOSED PLASTER TREATMENT OF INFECTED WOUNDS

Girdlestone writes in the *Lancet*, July 13, 1940: There is no need to reject enclosure of the wound and immobilization of the soft tissues, because the full ritual is in part contra-indicated. 1. In the debridement, the general rule is to excise, as far as practicable, infected tissues and tissues devitalized by bruising or by the impairment of circulation. 2. It is advisable to lay open rather than suture when suturing would involve tension and devitalization of the skin or deep parts. 3. There should be a varying degree of "saucerization," which allows natural retraction of the muscles to the position of equilibrium and involves a laying open for free drainage of all pockets or areas of heavily infected or damaged tissue which cannot properly be excised. For serious destructive wounds the requirements vary from the saucer to the cup; but there are many wounds in which no such formidable exposure of the deep tissues is indicated. Nothing more may be needed than a layer of broad wick laid between the edges of the wound after debridement. 4. The plaster splintage has a dual purpose: (a) the restoration of function by keeping the bones, joints and muscles at rest in the chosen position; (b) defence against the spread of infection by keeping the cellular infiltration undisturbed in the tissues and lymph channels round the wound. 5. This is favoured by a particular technique of enclosure of the wound in that part of the plaster which covers the exposed tissue. It should apply an even gentle

pressure similar to that normally exercised by the fascia and the skin. 6. The closed plaster treatment eliminates frequent dressings, which mean either pain or repeated anaesthesia for the patient and are both time consuming and expensive.

It has been said that after two or three days the closed plaster method is not applicable to a dirty wound because excision is no longer practicable. This is a great mistake, for in the author's opinion no method of treating can compare with closed plaster after saucerization, which may include laying open all heavily infected areas.

A wound that will benefit from saucerization and enclosure does not always need excision; indeed, excision is generally contraindicated in the presence of established sepsis. On the other hand a late wound which has been unsuccessfully treated by excision and suture may need the whole ritual.

It has been said that for wounds near a joint this method is unsatisfactory on account of resultant stiffness. It is true that when early excision and suture without tension can be undertaken the method need not be applied. But where the wound has involved widespread laceration and devitalization of tissues or where, owing to lapse of time, there is spreading infection, the closed plaster method gives not only relative safety of life and limb but also a better prospect of movement. The method has been decried because a number of wounded men have reached the hospital with wounds doing badly from extensive pressure sores. Probably the surgeons were imperfectly familiar with the method, for he who would apply plaster in war must be skilful in its use or he will be a danger to his patients and bring undue discredit on the method.

THE PATHOLOGY OF CLINICALLY HEALED TUBERCULOUS CAVITIES

Oscar Auerbach and Henry Green, *Am. Rev. Tuberc.*, 42: 707-730, December, 1940.

A tuberculous cavity must be considered clinically healed or healing when it is no longer capable of producing bacilli laden sputum. Such healing was found to occur in one of two ways: (a) "closed" healing in which the cavity is either replaced by a fibrous scar or the lumen is obliterated by retained caseation, with closure of broncho-cavitary junction; and (b) "open" healing in which the lumen and broncho-cavitary junction remain patent.

The pathology of the healing tuberculous cavity in the "closed" form is characterized by the transformation of the cavity wall into fibrous tissue by an increase of connective tissue fibres at the expense of the cellular elements. In the cases where scar formation is the end result the inner lining is invaded by a granulation tissue which, as it fuses, obliterates the lumen. In the inspissated cavities a central fragmented zone of caseation fills the cavity lumen and is surrounded by a concentric zone of hyalinized connective tissue. The latter is the most frequent form of cavity healing observed at autopsy. "Closed" healing occurs after the closure of the draining bronchi. The bronchi entering the tuberculous cavity are often narrow and show tuberculous changes similar to that of the cavity wall. The proliferation of the endobronchial granulation tissue may unite the opposing surfaces. Closure of the bronchi may be aided by the contraction of the cavity wall, thus narrowing and approximating the bronchi at the broncho-cavitary junction. Collapse therapy may also aid the bronchial occlusion either through a distortion of the course of the bronchi or through an apposition of the bronchial walls. Illustrative cases are described.

In "open" healing of tuberculous cavities the bronchi open widely into the cavity; caseation is absent from the wall, there is a gradual transformation of the wall into fibrous tissue at the expense of the specific tuberculous elements, and more or less complete epithelialization may be present.

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- (4) Ferri et Ammon Citras and manganese cobalt and traces of copper.

Indication: **Primary & Secondary anemia**

Dose:—1 to 2 teaspoonful.

★

ELIXIR

PENTA VALERIAN

with

Bromides & Gold Arsenic
for

Hysteria and Neurasthenia

Dose:—½ to 1 fluid dr.

Messrs. Bhende Brothers,
Dias Lodge, Cursetji Rana Street,
GRANT ROAD, BOMBAY NO. 7.

Correcting Anaemic Tendencies

The increase of anaemic conditions found in general medical practice is probably due to the poverty of normal diets in blood-creating foods. In tropical countries especially, lack of iron in the soil, and the rapidity of fruit and vegetable growth both accentuate the tendency to haemoglobin deficiency. Early treatment is particularly urgent in climates where the prognosis of even slight anaemia is so unfavourable.

Hall's Wine is a valuable corrective to such conditions of anaemia, which, even in a mild state, are often the root of general weakness and debility. The thermal-energy value of Hall's Wine is definitely higher than non-medicated wines or spirits, and its tonic ingredients also assist metabolism, thus making its high iron content readily assimilable.

Nervous patients are mentally assisted by the mild stimulus which Hall's Wine exerts. Improved circulation also accompanies the increase in haemoglobin content of the blood.

For haemoglobin-deficiency, Hall's Wine may be prescribed with perfect confidence.

HALL'S WINE

Tonic Restorative



Distributors: J. HALLEY & CO., LTD.

P. O. Box 133,
Calcutta.

P. O. Box 84,
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HW 80

in iron-deficiency anaemias 3 TABLETS DAILY give effective treatment

During the last few years much authoritative evidence has been published showing that (a) iron-deficiency anaemias can be successfully treated only by massive dosage of iron, and (b) that of all sources of iron, ferrous sulphate has probably the highest therapeutic value.

In more than one of the many investigations which have contributed to this point of view, Fersolate Tablets have been used as the most effective and stable form of ferrous sulphate. Moreover, they are frequently quoted in published work as an example of economical yet effective iron therapy.

Full treatment in all iron-deficiency anaemias is assured by giving 3 Fersolate Tablets daily—a dosage which normally produces the optimum increase in haemoglobin of 2 per cent. daily. One bottle of 100 tablets is usually a complete treatment for even a serious case of iron-deficiency anaemia.

FERSOLATE TABLETS

Bottles 100 & 500.

PRODUCT OF THE
GLAXO LABORATORIES

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P.O. Boxes: 202, Bombay: 2257.
Calcutta: 108, Madras: 244, Lahore.



RELIEF of PAIN

Pain is the symptom from which patients most insistently demand relief.

This primary service is simply and safely performed, in the majority of cases, by Codopyrin—a potent, non-habit forming analgesic. Codopyrin has a wide margin of safety and consists of three analgesics, acetylsalicylic acid, phenacetin, and codeine phosphate. The individual merits of each of these drugs are well-known—in combination they reinforce each other, and provide one of the best examples of synergism in this field.

Prompt relief from pain follows the use of Codopyrin in rheumatism, neuritis and dysmenorrhoea.

It is also an effective antipyretic of considerable value in the treatment of certain fevers associated with pain, and as a mild sedative for the relief of insomnia connected with pain and pyrexia.

FORMULA

Each tablet contains

Acetylsalicylic Acid	- - - 0.26 gm.
Phenacetin	- - - - - 0.26 gm.
Codeine phosphate	- - - 0.01 gm.

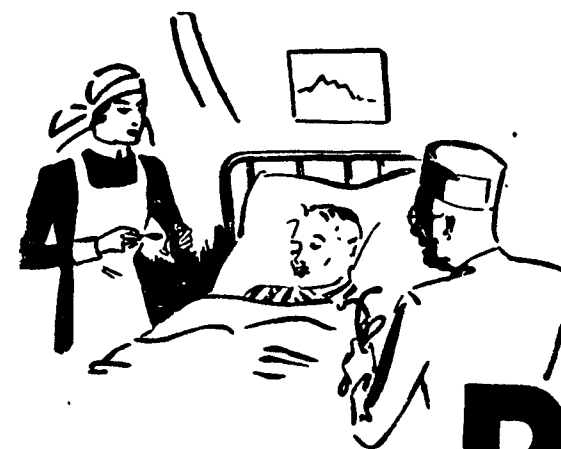
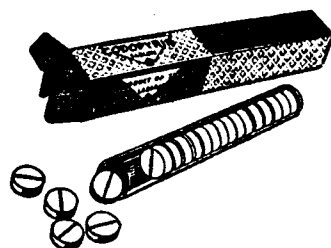
CODOPYRIN

TABLETS In tubes of 10 and 20

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All your
patients
will readily
accept & enjoy

BRAND'S ESSENCE OF ENGLISH CHICKEN

because—

- Brand's Essence is easily and quickly digested without the formation of any solid precipitate—as may occur in the case of milk, raw white of egg, or even the best home-made chicken broth. Where there is gastric insufficiency, full digestion of these fluids sometimes takes many hours.
- This absence of precipitate at all stages of the digestion of Brand's Essence indicates that the system absorbs it with a minimum of effort. The stimulating properties of the Essence take speedy effect owing to the high degree of solubility of the natural protein.
- Even when the gastric juices are enfeebled by acute and chronic disease, there is always enough of the digestive ferments present to deal with the protein present in the Essence. For this reason, it may confidently be prescribed in conditions involving minor degrees of hypochlorhydria.
- Brand's Essence liberates and strengthens the gastric juices. It provokes neither irritation of the delicate lining membranes of the stomach nor the spurious stimulation induced by alcohol and similarly-acting drugs. Most of the resultant free acid is absorbed by the soluble protein. This is present in sufficient quantity to protect the stomach membranes and thus diminish the discomfort of food digestion.
- The Essence can be taken in large quantities without causing thirst or diarrhoea, or throwing a strain upon the kidneys.
- There is practically no acute or chronic condition in which it cannot be given with safety and advantage.

Agents for India and Burma:

GRAHAMS TRADING CO., (India) LTD.
Calcutta Bombay Karachi Rangoon



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of many
GOOD
REASONS**

*for
prescribing*



Glaxo

MODIFIED MILK FOOD

- 1 Price reduction has been maintained. This means welcome relief to overtaxed domestic budgets.
- 2 No interruption of supplies. This means that baby patients will continue to do well on Sunshine Glaxo infant food.

In these times of increased expenditure Glaxo remains the economical milk food within reach of all but your poorest patients. Glaxo is specially modified to meet the nutritional needs of infants in the tropics. It contains standardised amounts of vitamin D, and as much iron as in breast-milk, thus affording protection against rickets and nutritional anaemia.

The availability of fresh stocks is assured; prices remain at their popular level and no increase in price is contemplated.

You can prescribe Glaxo with the confident knowledge that the many precautions taken in manufacture and packing ensure a maximum standard of safety and purity at all times.

HOW GLAXO IS MODIFIED

	Powder per oz.	Liquid (1 in 8) per oz.
Fat	20.0	2.5
Protein	24.5	2.1
Carbohydrate	46.0	5.8
Ash (Minerals)	5.5	0.7
Choline, etc.	1.5	0.2
Moisture or water	2.5	97.7
Calorie value per oz.	135	16.8

VITAMIN D: 130 International units per pint reconstituted.
IRON: 5 parts per million reconstituted.



Representatives in India

**H. J. FOSTER & CO.,
LIMITED.**

BOMBAY CALCUTTA MADRAS LAHORE

The Original and Standard Emulsion of Petroleum

Angier's Emulsion

is made with petroleum specially purified for internal use. It is the original petroleum emulsion—the result of many years of careful research and experiment.

Bronchitis, Sub-Acute and Chronic.

There is a vast amount of evidence of the most positive character proving the efficacy of Angier's in sub-acute and chronic bronchitis. It not only relieves the cough, facilitates expectoration and allays inflammation, but it likewise improves nutrition and effectually overcomes the constitutional debility so frequently associated with these cases. Bronchial patients are nearly always pleased with this emulsion, and often comment upon its soothing, "comforting" effects.

Pneumonia and Pleurisy.

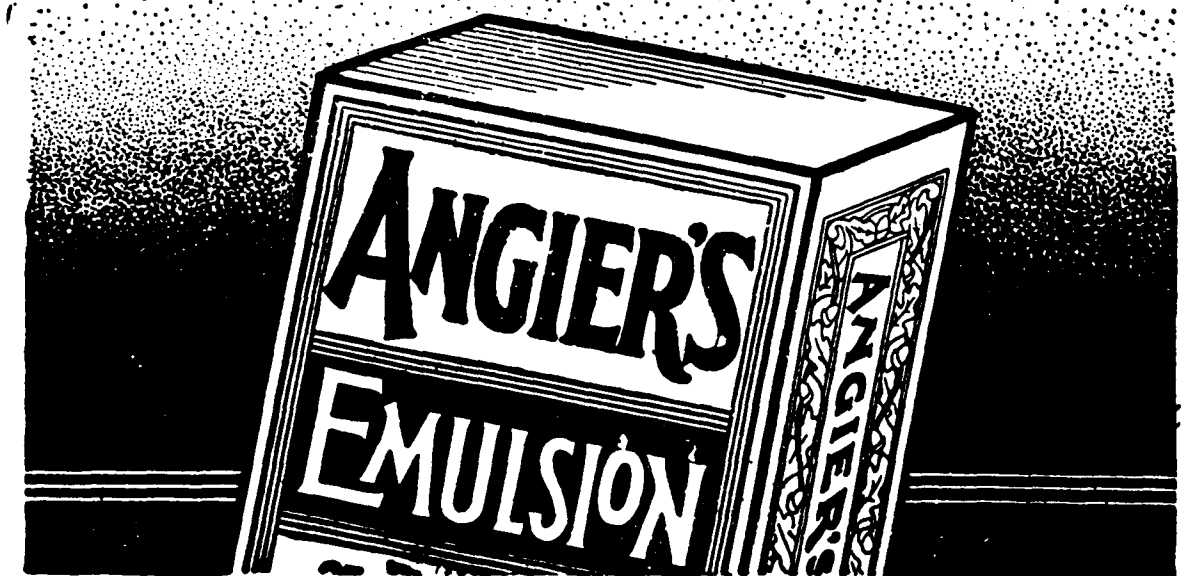
The administration of Angier's during and after Pneumonia and Pleurisy is strongly recommended by the best authorities for relieving the cough, pulmonary distress, and difficult expectoration. After the attack, when the patient's nutrition and vitality are at the lowest ebb, Angier's is specially indicated because of its reinforcing influence upon the normal processes of digestion, assimilation and nutrition.

In Gastro-Intestinal Disorders

of a catarrhal, ulcerative, or tubercular nature, this emulsion is particularly useful. The minutely divided globules of petroleum reach the intestines unchanged, and mingle freely with intestinal contents. Fermentation is inhibited, irritation and inflammation of the intestinal mucosa rapidly reduced, and elimination of toxic material greatly facilitated.

Free Samples to the Medical Profession.

MARTIN & HARRIS, LTD., Mercantile Building, Lall Bazar, CALCUTTA
Proprietors:—THE ANGIER CHEMICAL COMPANY, LTD.



GLYKERON

*Coughs, Bronchitis, Asthma,
Laryngitis and other Res-
piratory Affections*

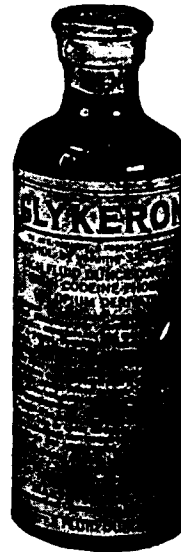
A Bronchial Sedative

Control the cough that weakens your patient.

GLYKERON quickly relieves this distressing symptom because it contains medically approved respiratory sedatives.

Your patients with respiratory affections do better when they sleep better—*without coughing.*

GLYKERON may be administered to diabetics freely as it contains no sugar or syrup and causes no disturbance of digestion.



Stimulating Expectorant

GLYKERON loosens the mucus in the bronchial passages and aids in its expulsion.

It lessens the hazard of complications by getting rid of germ-laden secretions.

Prescribe it for the symptom of cough. Very palatable.

GLYKERON supplied in 3 oz. as well as 16 oz. bottles.

DOSAGE: Adults, one to two teaspoonfuls every two or three hours or at longer intervals as the individual case requires. Children, from ten drops to one teaspoonful according to age.

Literature on request

MARTIN H. SMITH COMPANY · NEW YORK

LEXIN THERAPY

OTHER USES OF LEXIN

Snake-bite: Lexin inhalation and injection.

Opium Poisoning: Lexin inhalation and intravenous injection 1 c.c. to 4 c.c. Repeat as required.

Influenza: Put a few drops on handkerchief and inhale deeply for a few minutes; repeat every now and then till relief.

Hysteria } Inhale as above; or put a drop or two into nostril; this breaks the fit.
Epilepsy }

Cholera: Inject 2 c.c. intramuscularly, repeat every hour if necessary. If no pulse inject 1 c.c. intravenous.

Collapse: Intravenous injection 1 c.c.

Trauma and } Intravenous injection 1 c.c.
Surgical Shock }

Bleeding from any orifice: Inject 2 c.c. intramuscular or 1 c.c. intravenous.

Asthma: In extreme dyspnoea—inject 2 c.c. intramuscular; after 1 hour 2 c.c. intravenous. Only one injection gave prompt relief and permanent cure in many cases.

Pains of Cancer: Inject 2 c.c. intravenous.

P. BANERJI, Mihijam, India.