

Medical Practitioner:

A monthly medical Journal

Vol. 4. January 1935

N35

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The Medical Practitioner

A Monthly Medical Journal

EDITED BY

Dr. V. Rama Kamath,
Member, Madras Medical Council.

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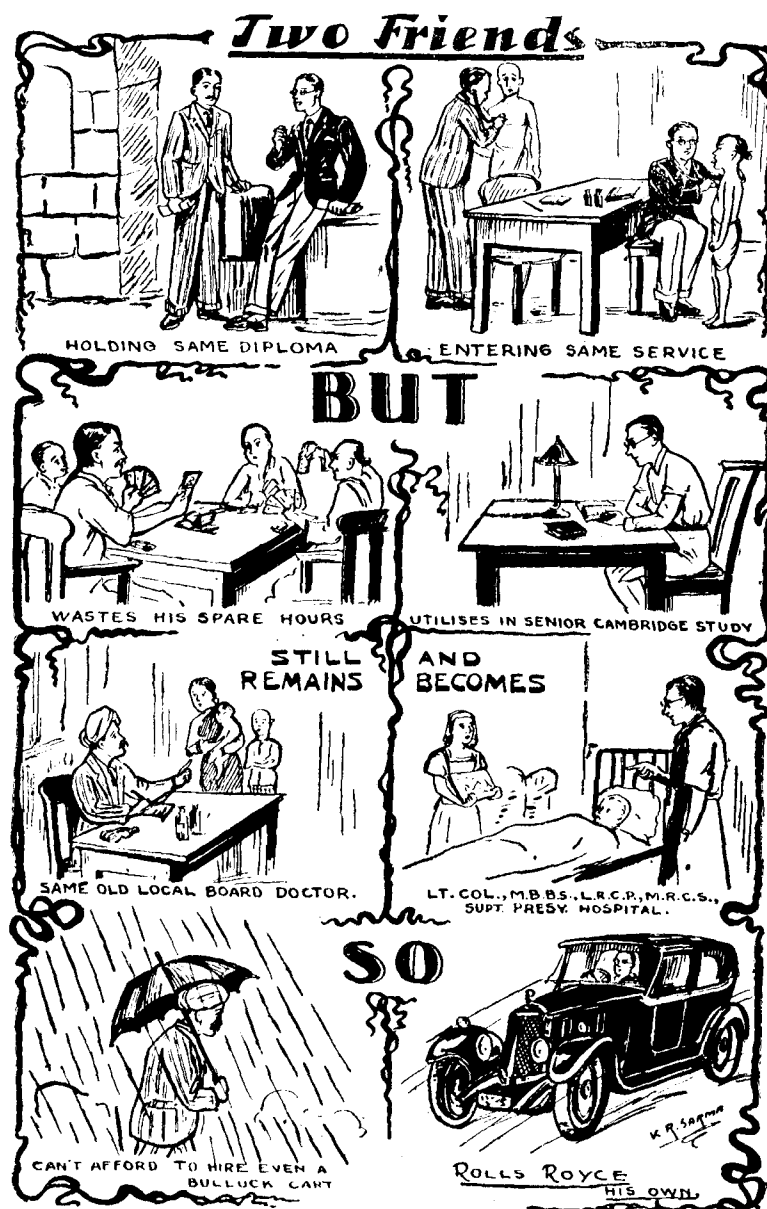
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THE Medical Practitioner

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VOL. VI.]

JANUARY, 1935.

[NO. 4

HONORARIES—A DILEMMA.

It is now nearly 3 years since the Government approved of the rules framed by the Committee specially appointed by them with regard to the scheme of Honorary Medical Officers in Government institutions. The suggestions of this committee were adopted by the Government in toto. We wrote a series of articles on this subject in detail and pointed out certain defects and suggested several improvements on the proposals of the committee. Amongst other things we suggested at the time the necessity of having a standing committee consisting of independent practitioners preferably those who are not honoraries, which committee should not only select honoraries but also serve to advise the Government on any reference made to them regarding the working of the scheme in all details.

We have been told that practical difficulties have now presented themselves to the Surgeon-General regarding the tenure of honorary appointments. The minimum period fixed by the rules for the service of an honorary as Clinical-Assistant is two years and the maximum five years. A few honoraries who have finished over three years of service as Clinical-Assistants, have applied to the Surgeon-General to promote them to the next grade i.e., as honorary Assistant-Surgeons. Almost all of them seem to have been recommended by the superintendents of the respective hospitals and the Clinical-Assistants who have applied for promotion to the grade of honorary Assistant-Surgeons are reported to be Medi-

cal Licentiates. It is also said that the Surgeon-General had replied to one or two such Clinical-Assistants to renew their applications next year without assigning any reason. Such a reply has naturally created a suspicion amongst the Licentiate section of Clinical-Assistants if honoraries belonging to their class will have any chance of rising up the ladder of honorary service. There seems to be some justification for such a fear as amongst those who have applied, there is one who has been working as an honorary for over six years. On the other hand we are led to believe that there are causes at work for the caution that is being exercised at the office of the Surgeon-General over the matter of promoting medical licentiates as honorary Assistant-Surgeons. There are some stations in the mofussil where the Government medical-officers in charge are sub-assistant-surgeons some of whom possessing foreign qualifications and where the Licentiates are working as Clinical-Assistants and if the latter are promoted as honorary Assistant-Surgeons, the Government medical officers who are in the grade of sub-assistant-surgeons are likely to be lowered in their status. So the atmosphere of caution now prevailing at Surgeon-General's office may be justifiable to a certain extent. All the same we wish to point out that about a year ago a Licentiate who was working as a Clinical-Assistant in one of the special departments of the City hospital, was promoted as honorary Assistant-Surgeon. It may be argued that this Clinical-Assistant had a special qualification of L. O. But the

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From.....M.D.C.M., (Madras.)
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les Iron, Quinine, Manganese, Ovary and
Thyroid, are really an effective combina-
tion and are indicated for the treatment
of intractable cases of Amenorrhoea due
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to arrange for the sale of these with all
respectable chemists so as to make them
easily available to the patients?

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From.....M.B. Ch.B. (Edin.)
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the other for preventing pregnancy, con-
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Medicated Pessaries his wife had not her
menses and at the time he consulted me, it
was one month and 15 days since his wife
had her last period. He showed me the
literature of the Menestrin Capsules and
wanted my opinion whether he could safely
use them for his wife. Though it was the
first time I heard about the Menestrin
Capsules, the ingredients contained in them
being harmless, I advised him to try them
and let me know the result, as I could not
think of anything else to suggest. A week
after the use of the Menestrin Capsules the
lady's husband informed me that his wife
got her period. Ever since, I prescribed the
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fact that a Clinical-Assistant with the identical qualification working at one of the Government Head Quarters Hospitals had been asked to renew his application after one year in spite of a good record of work, will necessarily make it appear that the present policy of caution is inconsistent though in reality it may be justifiable.

The existence of paid medical service side by side the honorary service in one and the same institution is the real cause of the Dilemma in the working of the Scheme of Honorary Medical Officers. The prevailing designations in paid Government service do not always indicate the nature of the responsibilities of the posts. It is a misnomer to style a medical man in service as Assistant-Surgeon or Sub-Assistant-Surgeon when he is in independent charge of a medical institution. Medical officer (in charge of the hospital or a dispensary) will be a more suitable designation which will not in any way lower the status of the Government medical officers by whatever name the honoraries working with them are called. Honorary medical officers should not be made to suffer either in their prestige or status on account of any inherent defects in the paid service. The Government is morally and even legally bound to carry out the existing rules on the working of the honorary medical officers scheme till the existing rules are modified by another Government Order. The practitioners who entered honorary service have a claim on the Government to give effect to the rules that existed at the time they took up the honorary posts.

No scheme however well thought of, can be expected to be perfect. The scheme regarding Honorary Medical Officers is bound to show practical difficulties at every stage of its working. The Surgeon-General with the Government of Madras is the chief and the only adviser of the Government in all medical matters. The exigencies of service and other circumstances usually come in the way of this officer and prevent him from holding office continuously even for a period of three years. Consequently there are ever so many breaks in the continuity of any one policy for the time adopted by the Government. The successful and smooth working of the scheme regarding Honorary Medical Officers

depends upon various circumstances and it is too much for the Government to expect that the Surgeon-General who depends upon and is guided by the reports of his immediate subordinates in all matters connected with this scheme, could do justice to the working of the scheme as there will be always clashing of interests between two rival services paid and honorary. He will therefore be found in a Dilemma as at present even in the simple matter of promoting clinical assistants to the next grade which they have earned by rendering honorary service. So, as mentioned by us above, it is high time that the Government consider about the desirability of entrusting the working of the scheme to a standing committee presided over by the Surgeon-General.

Original Articles

VITAMINS.

By

DR. M. R. GURUSWAMI MUDALIAR,

B.A., M.D.

Physician, General Hospital, Madras.

(Continued from October issue.)

VITAMIN-B.

The efforts of Tabaki to stamp out Beri-beri from the Japanese navy, the epidemiological studies of Vordermann in Java (1895), and of Braddon in Malay States, and the experimental feeding of fowls by Eijkman focussed attention on the polished rice as the possible cause of Beri-beri. Fraser and Stanton tried extracting the active substance from rice polishings, Chamberlain and Vedder found that this substance could be dissolved out of rice polishings by water or by 90 per cent alcohol, that it was dializable, and that it was absorbed by animal charcoal. Funk came out with his publication in 1911 and coined the name "Vitamins" for this. Though priority of publication goes to Funk, other men had come to the same conclusion independently, about the same time. Among these investigators the names of Edie, Evans, Moore, Simpson, Webster, Suzuki, Shimamura and Odaki stand out. All these observers obtained a crystalline product which had a melting point about 233. C and very small quantities of which

had the property of curing the induced polyneuritis of birds. Vedder and Williams (1913) indicated the probability of this product being not single, and they thought that the wet and dry varieties of Beri-beri were caused by lack of different but allied vitamins. Seidell has given a formula for this vitamin obtained from yeast. The formula provisionally is $C_8H_5O_3N_3$.

Later work has shown that what was taken to be Vitamin B. was really a "complex". Majority of workers are now agreed that it should be split into Vitamin B₁ and Vitamin B₂. The former is associated with Beri-beri, and the latter with Pellagra—the American workers Goldberger and others called it P-P factor i.e. Pellagra-preventive factor (1926).

The chemical character of these is being studied intensively under the auspices of the National Medical Research Council of Great Britain. New methods of concentrating B₁ have been elaborated. The investigation of B₂ has not been equally encouraging. Dr. Drummond thinks that the so called Vitamin B complex owes its activity not, as generally believed to two substances but to four. There is a certain amount of confusion about the classification of Vitamin B, as different workers have isolated different but allied vitamins which are all grouped about B. To help the profession in this matter, the Biochemical Society of England has adopted the plan of indicating the various vitamins of this complex by subscribed numbers eg. B₁, B₂, B₃ etc. a descriptive adjective or phrase being added when necessary.

The following terms are in use now:—

Vitamin B₁ for the more heat-labile, antineuritic vitamin discovered by Eijkman (1897).

Vitamin B₂ for the more heat-stable "P—P" factor discovered by Goldberger and co-workers (1926) and found necessary for the prevention of dermatitis in rats.

Vitamin B₃ for a heat-labile factor of this group, described by Williams and Waterman (1927-28), present in yeast and whole wheat and necessary for proper nutrition in the pigeon.

Vitamin B₄ for the heat-and alkali-labile factor described by Reader (1929), present

in yeast and necessary for the health of the rat. (previously this was known as B₅.)

Vitamin B₅ for the factor described by Carter, Kinnersley and Peters (1930) is necessary for the weight maintenance of pigeons.

Vitamin Y for the heat-and alkali-stable factor described by Chick and Copping (1930) present in yeast and many other food stuffs but deficient in egg-white. All the above are found in the fresh yeast.

Vitamin B₂ has been called Vitamin G by some, and Vitamin B₁ has been called by some Vitamin F.

PROPERTIES OF VITAMIN B₁

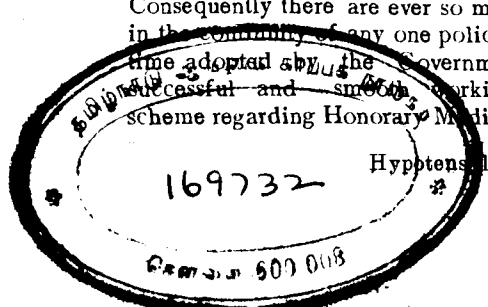
It is soluble in water. It is not precipitated by moderate concentrations of alcohol. 70 per cent alcohol extracts best. Higher concentrations precipitate the vitamin. However the crystalline preparation of Vitamin B₁ is soluble in absolute alcohol. It is not dissolved by ether, ethyl acetate, chloroform or carbon tetrachloride. It is soluble in glacial acetic acid and in 70 per cent acetic acid.

It is thermostable—resisting a temperature of 100 C. in slightly acid medium (p. h 4.0-5.0) for 1 to 2 hours. It withstands desiccation for long periods—hence dry cereals do not lose this vitamin. It resists hydrolysis with acids, but is readily destroyed by alkalies even at low temperatures.

Vitamin B₁ is absorbed by bone black, fuller's earth, norite charcoal, and dialysed iron. The hydrogen ion concentration of the medium and presence of colloidal impurities exert a great influence on the absorption on Vitamin B₁.

It is not susceptible to oxidation by atmospheric oxygen and in this respect differs from Vitamin A and Vitamin C. Ozone does not affect it; ultraviolet rays do not destroy it—in any case when the exposure is not too long. This vitamin in acid solution resists hydrogen peroxide and potassium permanganate or heating with 5 per cent nitric acid.

Vitamin B₁ passes through a parchment membrane. Zilva and Miura believe that this vitamin has a molecular weight of the order of 300—350 or that it forms a complex of about this molecular weight with some other substance.



THE
UNIVERSITY OF MADRAS
N 35

PHYSIOLOGICAL SIGNIFICANCE OF VITAMIN B₁

In addition to affording protection against polyneuritis, Vitamin B₁ is essential for normal growth of young rats and for maintenance of normal weight and health in adults.

Vitamin B₁ is also necessary for weight-maintenance of pigeons. Lack of this factor both in rat and in pigeon, and presumably in other species results in decline in weight, as well as in the ultimate development of polyneuritis.

It has been shown that Vitamin B requirement under conditions of growth or maintenance of body weight on a diet of constant composition bears some definite ratio to the body weight. There is a constant relationship between the amount of Vitamin B deficiency, the weight of the individual and the date of onset of symptoms, proving that animals possess a definite but limited store of Vitamin B₁.

In the absence of Vitamin B₁ food may be absorbed normally but it is not utilised. There is also a loss of appetite, which reduces the quantity of food taken which in turn reduces the vitality and thereby sets up a vicious circle. Drummond and others believe the fall of body weight, ruffled feathers, fall of body temperature and hyperglycemia seen in experimental animals, as being due to partial starvation rather than as specific manifestations of the lack of Vitamin B₁. Nevertheless avitaminosis is not identical with inanition. The vitamin does influence metabolism of the animal, as is shown by the continued growth and well-being.

Tscherkes (1926) showed that Vitamin B bore a relation both to protein and to carbohydrate metabolism. It has also been claimed that the vitamin B requirement is lower on a high protein than on a high carbohydrate diet. Observations of Kinnesley and Peter (1930) and of Fisher (1931) have shown that a deficiency of Vitamin B₁ induces a fault in the metabolism of lactic acid. Hyperglycemia with a corresponding diminution in the glycogen content of the liver was noted with Vitamin B deficiency.

VITAMIN B AND SECRETION OF GLANDS.

A marked feature of Vitamin B₁ deficiency is the atrophy and cellular degenera-

tion produced in many organs (e. g. intestinal and gastric mucosa, pancreas, salivary glands and liver)—a special feature being the disappearance of lymphoid tissue (G.M. Findlay 1928). Sex glands are atrophied.

Vitamin B and intestinal peristalsis: McCarrison and others had noted that a certain amount intestinal atony and stasis result from deficiency of Vitamin B. Santhanakrishna Pillay found delay in the passage of barium meal in the intestinal canal of sprue cases. But Kon and Drummond found no delay in the passage of barium meal through the intestinal canal of polyneuritic pigeons.

Vitamin B and Bacterial infection: According to Barlow (1930) rice-fed pigeons have a lowered resistance and may develop septicemia. Zilva and others have found that under these conditions, there is no deficiency in the production of agglutinis precipitous, haemolysis and bacteriolysins (1919-1923).

Vitamin B and Heart: Carter and Drury (1929) showed that pigeons developed bradycardia and heart block. This is due to vagal influence and can be abolished by vagal section or atropine.

Vitamin B and Blood: The conditions noted are anaemic, and later anhydraemic leukopenia with lymphocytic reduction mainly.

Excretion of Vitamin B: It is partly excreted in urine and faeces. It is not definitely known whether the vitamin B present in the faeces is derived from the animal's reserves or from synthesis by micro-organisms in the intestine.

PROPERTIES OF VITAMIN B₂

Vitamin B₂ has greater heat stability than Vitamin B₁. It is usually known as the "Heat-stable-factor" in the vitamin B complex. But the heat stability is only relative. In a medium of pH 4.5 i.e. when the reaction is the same as that natural to yeast, much of Vitamin B₂ survives a temperature of 120 C. for five hours. In alkaline medium the vitamin B₂ is destroyed at comparatively lower temperatures. It has been proved, however, by Hassan and Drummond that Vitamin B₂ in marmite can survive one hour's heat at 120 even in strongly alkaline medium. Probably the vulnerability depends not only the pH

concentration of medium, but also on its salt content. B₂ is relatively insoluble in strong alcohol. It is dialysable. It is destroyed by ultraviolet rays. It is not affected by de-amination as was shown by Narayan and Drummond.

DISTRIBUTION OF VITAMIN B₁ and B₂ IN FOODSTUFFS

SUBSTANCES	VITAMIN B ₁	VITAMIN B ₂	SUBSTANCES	VITAMIN B ₁	VITAMIN B ₂
<i>Cereals & cereal products</i>			Ripe leaves	...	++
Barley (unhusked or husked)...	++	—	Spinach	...	++
Buckwheat	+	—	Turnips	...	+
Maize	++	+	Velvet bean leaves	+	++
Malt	+	—	Water cress	+	++
Millet	++	+	<i>Fruits</i>		
Oats	++	+	Apple	+	+
Rice	++	+	Banana	...	+
Ragee	++	—	Date	...	—
Wheat	+++	++	Lime juice	+	—
Wheat flour (Refined)	...	—	Orange juice	+	+
			Tomato	+	+
<i>Legumes</i>			<i>Meat and Fish</i>		
Beans (green string)	—	—	Fish	+	—
" Haricot	++	—	Meat, lean beef and pork	++	++
" Kidney	—	—	Ox brain	++	—
" Soy	+	+	" heart	++	—
" Velvet	++	+	" kidney	++	—
Lentils	++	—	" liver	—	++
Peas (dry)	++	++	" testes	++	++
Coffee	+	—	Sheep brain	++	—
<i>Nuts</i>			<i>Milk & Milk products</i>		
Almond	+	—	Cow's milk fresh	+	++
Chestnut	+	—	" dried, sterilized, boiled	—	—
Coco-nut	—	—	" condensed	+	—
Hazel nut	++	—	Goat's milk	+	+
Pea nut	++	—	Cheese	—	+
<i>Vegetables</i>			<i>Eggs Hen's</i>		
Cabbage	++	+	White	—	++
Carrots	++	+	Yolk	++	+
Lettuce	++	+	<i>Miscellaneous</i>		
Onion	+	+	Yeast	+++	+++
Potatoes raw	++	+	Beer	—	+
" peeled	++	—			

Hypotensyl tablets contain a special hypopiesic principle of the spleen.

PHRENIC EVULSION IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By

DR. S. KRISHNASWAMI, M.B.B.S.
Government Tuberculosis Hospital, Madras.
(continued from December issue.)

TECHNIQUE OF THE OPERATION.

The operation is done under local anaesthesia. Novacaine 1% solution is used with adrenalin hydrochloride solution 1 in 1000; 15 to 20 c.c. of the sterilised solution is quite enough to completely anaesthetize the field of the operation. In some cases the patient is given also an injection of morphia $\frac{1}{4}$ gr.

The skin incision is either longitudinal along the junction of the middle and lower one third of the lateral border of the sterno-mastoid muscle $1\frac{1}{2}$ to 2 inches in length or the incision is transverse about $1\frac{1}{2}$ inches above and parallel to the clavicle beginning from the lateral border of the sterno-mastoid muscle. The length of the incision is 1 to $1\frac{1}{2}$ inches. The skin, platysma and fascia are divided and the lateral border of sterno-mastoid is defined, exposed, and retracted medially. Dissection is then carried through fat and deep cervical fascia lateral to the lateral border of sterno-mastoid and after these are cleared, the scalenus anterior muscle covered by fascia comes in view. Beneath this fascia, the phrenic nerve will be seen as a white line crossing obliquely from above downwards and medialwards. The fascia is slit and the nerve is raised from its bed. The dissection should not be made too medially as the internal jugular vein is sure to be cut. When the nerve is pinched with forceps or pulled up, the patient will complain of pain referring to the corresponding shoulder or arm. The nerve is cleaned and isolated as far as possible above and below. It is then lifted up with an aneurysm needle and after injecting a few c.c. of novocaine solution into its sheath, it is caught in two places by artery forceps. The nerve between the artery forceps is then cut with scissors. The proximal end is then ligated with catgut. The distal end is then caught by a special clamp by means of which traction is applied gradually and firmly till as great a length

of the nerve as possible is evulsed. It is at this moment that the patient will complain of severe pain in the lower part of chest on the operated side. When the nerve snaps, the patient feels sudden relief. The rupturing of the terminal filaments of the nerve in the diaphragm, can actually be felt during the traction. After arresting the bleeding in the operation wound, the wound is closed by stitching separately the muscle and the skin.

If the whole nerve is removed, it usually measures between 30-40 cms. according to the size of the chest.

COMPLICATIONS.

In the Madras Tuberculosis Hospital where till now more than 350 operations have been performed we have never had any serious complications. In a few cases bleeding was somewhat abnormal. In only three cases the nerve could not be got. In nearly 10 per cent of cases, abnormalities regarding position of the nerve or the nerve arising by two branches were met with. There was not even one mortality due to the operation itself.

EFFECT OF THE OPERATION ON THE DOME OF DIAPHRAGM.

After a complete interruption of nerve impulse to the hemidiaphragm has been effected and if adhesions or thickening of the diaphragmatic pleura are not present, the diaphragm immediately assumes the expiratory position and under the fluoroscope, it is motionless on quiet breathing. On deep inspiration, it rises slightly into the chest cavity as a result of the higher abdominal and lesser intrapleural pressure, a phenomenon known as 'Paradoxical Diaphragm Movement.'

While the paralysed hemidiaphragm, if not hindered, assumes the expiratory position immediately after operation, it continues to rise gradually throughout the ensuing months as muscle degeneration and atrophy progress. This is still further accentuated by the shrinkage of scar tissue as the healing of the lung progresses. The maximum rise may not be attained for from six months to a year or more.

On the right side, the elevation may be from 4 to 8 cms. On the left side it is less 2 to 4 cms. on account of the position of the heart.

The effect of the paralysis is twofold. It prevents the diaphragm pulling on the lung and expanding the lower lobe. It also produces partial collapse of the base of the lung.

REDUCTION OF LUNG VOLUME.

By the high and immobile position of the hemidiaphragm, the lung volume is reduced in favourable cases from one quarter to one third. The result of this reduction is a partial collapse of the lower lobe and a diminished respiratory activity at the base.

SYSTEM OF MENSURATION ADOPTED TO MEASURE THE RESTRICTION OR OTHERWISE OF MOVEMENT IN DIFFERENT PARTS OF THE LUNG WITH SOME ACCURACY.

The fixed points used for measuring are taken in the substance of the lung itself as the ordinary skiagram of the lung allowed a sufficient number of fixed points in the forms of scars, patchy opacities, calcified points, cavities, bronchical bifurcations, pleural thickenings, and afford the selection of points both in the upper and lower zones for mensuration purposes. Skiagrams were all taken in the inspiratory phase and the exposure made at the same focal length so that measurements taken before and after the phrenic evulsion operation were strictly comparable. The results obtained in these cases are interesting.

In the majority the percentage of collapse was well marked. The upper zone on the side of the operation also showed a definite amount of collapse, though of less degree than in the lower zone. The upper zone of the collateral lung showed considerable compensatory stretching and expansion whilst in a large number of cases the lower zone of the collateral lung showed a collapse. The cause of this sympathetic or reflex collapse which was definitely present in 26 out of 57 cases cannot be explained. In cases where the upper or the lower zone on the operated side failed to show collapse, no benefit was derived from the operation. It is thus clear that the benefit of the operation is due to the absolute and permanent diminution in the stretch and size of the affected lung as a direct result of the diaphragmatic paralysis. From the analysis of 57 cases investigated, it is found that the average collapse at the base of the lung on the operated side was

19 per cent. In the upper zone on the operated side it was 7 per cent. On the contralateral side there was average compensatory stretch in the lower zone of 2 per cent and in the upper zone of 5 per cent. The general result therefore shows a maximum degree of collapse at the base on the operated side and a maximum degree of stretch in the upper zone of the collateral side.

EFFECT UPON THE LUNG.

The results of an induced hemidiaphragmatic paralysis are less dependent upon the site of lesion than upon its type. This is explained by the fact that in certain types of tuberculosis, particularly the proliferative varieties, the capacity for collapse of the diseased lung tissue is greater than that of healthy lung tissue. Therefore even though lesion is in the upper lobe, the rising diaphragm, by reducing the volume of hemithorax, permits the collapse capacity of the diseased lung tissue to exert itself even without any collapse of healthy lung tissue.

The results of an induced hemidiaphragmatic paralysis are more dependent upon the rise of the diaphragm and the degree of collapse of diseased lung tissue affected thereby, than upon merely placing the diaphragm at rest. This is based upon the observation that the best results here always been associated with a marked rise of the diaphragm and the poorest results have always been in those cases in which little or no rise of the diaphragm took place. The rise of the diaphragm to the collapse of diseased lung tissue are dependant upon the character and extent of adhesions as well as the type of tuberculous lesion. The more the pulmonary lesion tends to the proliferative type, the greater the collapse capacity of the diseased lung. Thus the most favourable results are noted in those lesions which are predominantly proliferative. Even though the collapse capacity of the diseased lung tissue is great, a collapse may be prevented by adhesions, particularly interlobar or adhesions between the parietal and visceral layers of the pleura by the thickening of the diaphragmatic pleura which prevent a rise of the paralysed diaphragm. In upper lobe lesions, if the lung is closely adherent to the chest wall or interlobar adhesions exist, there may be no

collapse of the diseased lung tissue even though there is an excellent rise of the diaphragm.

CLINICAL EFFECTS.

The beneficial influence of a satisfactory hemidiaphragmatic paralysis is manifested clinically first in the marked reduction of the amount of expectoration. During the first few days of the operation, there may be a marked increase of sputum, due to expectoration of retained secretions from the diseased lung tissue, but following this, the quantity of sputum diminishes rapidly. This initial increase in sputum is particularly apparent in the case of lower lobe lesions. Not only is there a marked reduction in the quantity of sputum but there is also a diminution in the number of tubercle bacilli.

Contrary to the early general belief that a paralysed diaphragm would abolish the ability to cough effectually, thus endangering the patient to serious complications from the retention of secretions or the aspiration of sputum into healthy lung tissue through his inability to 'raise' the reverse is true. The ease with which expectoration is raised is a matter referred to, voluntarily by the patient. This is easy to understand since the expulsion of secretions through coughing is brought about through the action of the abdominal muscles and it is

therefore far more easily accomplished after the resistance of the natural diaphragmatic tissues has been abolished.

Aside from the reduction of sputum and the facility of expectoration, the most striking clinical effect, following a satisfactory hemidiaphragmatic paralysis is the rapid disappearance of fever which is a most gratifying and convincing proof of the value of phrenic evulsion. The reduction of fever in some cases follows even within 24 hours after the operation and continuous in favourable cases, day after day until the temperature comes down to normal. The reduction of the fever is attributed to the blockage of lymph channels and consequent stagnation of the lymph stream as a result of the collapse and rest provided to the diseased lung tissue, thus inhibiting the absorption of the tuberculo-toxic products.

Coincident with the reduction of fever and the diminution of expectoration, there takes place a corresponding improvement in the general condition of the patient. The appetite improves, the weight increases, the fatigue subsides, the secondary anaemia disappears and the patient looks and feels much better.

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Abstracts

SOME EXPERIMENTAL OBSERVATIONS ON THE VENOM OF THE INDIAN COBRA

By

K. VENKATACHALAM
and

A. N. RATNAGIRISWARAN.
(From the Research Unit, Medical College, Madras.)

THE venom of the Indian cobra, *Naia naia vel tripudians*, has been the subject of extensive researches during the past and its action has been studied in great detail by numerous investigators with a view either to discover an effective antidote to it or to inquire into the possibilities of its use in therapeutics. The observations that have been recorded by different workers on the symptoms of poisoning due to the venom and the changes produced by it on the various organs are more or less similar in essential details. The consensus of opinion is that in the poisoning, failure of respiration is the cause of death, that circulation survives for some time after the breathing ceases and that in most cases the heart continues to beat for hours if the aeration of the blood is maintained by artificial respiration.

The question, however, whether the respiratory paralysis produced by the venom is due to central or peripheral action is still open as the observations made by previous workers on this point are of a conflicting nature. Aron (1883), working on frogs, found that the peripheral nerve-ends were not paralysed and that death was due to the paralysis of the spinal cord only. Wall (1883) observed that 0.5 c.c. of the fresh venom injected into frogs exerted a weakening effect on the peripheral motor nerves accompanied by a similar effect on the central nervous system, especially the spinal cord. Ragotzi (1890) came to the conclusion that the characteristic action of cobra venom in both frogs and rabbits was on account of the paralysis of the motor nerve-ends and stated that Aron got different results because he had not used a sufficiently small dose of the venom. Wall's experimental results were also subject to a similar error. Vollmer (1893) maintained that the central nervous system was also directly paralysed besides the motor nerve-ends. Rogers (1903) and Elliot (1905) thought that failure of respiration due to paralysis of the centre was the cause of

death in cases of cobra venom poisoning. Cusbny and Yagi (1918), on the other hand, asserted that the respiratory failure was the result of peripheral paralysis and that the central nervous system was not directly involved in the action. As recently as last year, Kellaway (1933) during a discussion on 'Some peculiarities of Australian snake venom' upheld that the action of snake venoms on the respiratory centre was peripheral and not central.

Working with the gastrocnemius muscle-nerve preparations of frogs, we found that with the nerve alone immersed in a 1 in 20,000 solution of cobra venom in Ringer's solution, the excitability of the nerve to electrical stimulation after the lapse of ten minutes was not in any way different from that of the control nerve kept in pure Ringer's solution for a similar period. Whereas, if the muscle alone was dipped into the solution of the venom, its irritability to electrical stimulation through the nerve, which was greater than the control for a short period at the beginning, gradually became weaker and finally disappeared altogether. At this stage the muscle responded to direct stimulation for a short time, after which, even this stimulation had no effect. Excitability to direct stimulation was lost earlier if the venom had been injected into the muscle.

The diaphragm of a cat anaesthetized with chloralose was exposed on the left side of the abdomen as also the phrenic nerve of the same side. The diaphragm was hooked from the abdominal side and connected to a lever through a system of pulleys. The phrenic nerve was stimulated with a minimal tetanizing current every ten minutes for a period of forty minutes before and after the injection of 0.05 mg. of the dried venom into the femoral vein. It was found that whereas the response of the diaphragm to stimulation through the nerve was constant before the injection, yet, after the injection the diaphragm gradually failed to react to the stimulation. Long after the muscle had ceased to be irritable through the nerve, direct stimulation of the muscle was found to produce strong contractions.

Thus, while the irritability of the normal muscle to the tetanizing current through the nerve remains constant, the muscle acted on by the venom, is found, however, gradually to fail to respond to a similar stimulation. This, considered together with the observation that the nerve, whether

subjected to the action of the venom or not, induces contraction of the connected muscle when stimulated, seems to indicate that the end-plates block the transmission of the stimulus to the muscle. But to produce this phenomenon very small quantities of the venom have to be used and allowed to act for a long period. With bigger doses animals die long before the paralysis of the end-plates develops and this is probably the reason why, with lethal doses of the venom, the stimulation of the phrenic nerve immediately after death is found to rise to contractions of the diaphragm in the experimental animal.

The symptoms manifested in cases of cobra bites also afford evidence of paralysis of the end-plates. In about half the number of fatalities, where death occurs in about seven hours after the bite, the integrity of the central nervous system is maintained long after the patient finds it impossible to use many of the muscles of his body. In these cases, apart from the pain caused by the bite, the victim develops symptoms such as the following: Loss of control over the muscles of the legs, staggering, falling of the lower jaw with oozing of frothy viscid saliva from the mouth, indistinct speech, moaning, shaking of the head from side to side and quickened respiration. Forty minutes afterwards, the patient is unable to answer questions but appears conscious and his arms are not paralysed. The respirations are laboured, though not stertorous, and gradually become slower and cease without convulsions. Loss of control over the muscles of the legs, jaw, tongue and larynx are typical of peripheral paralysis and the order in which weakness of the muscles is felt seems to indicate that the muscles that are used most frequently get fatigued earlier. While locomotion and speech are impossible and respiration is getting feeble, the patient is able to use his arms and his consciousness fails only towards the end. These symptoms show that paralysis of the central nervous system follows that of the nerve-ends. But in about ten per cent of the cases where the victim dies within an hour of the bite, cardiac failure sets in too early for the manifestation of the signs of paralysis of the end-plates and death, in these cases, is due to the affection of the central nervous system, respiration failing first as the result of inadequate circulation and deficiency of oxygen. If the dose of the venom injected by the cobra at the time of the bite is sub-

lethal, the paralysis of the end plates that develops gradually passes off and in time the patient recovers. Hence it appears that though cobra venom, in common with the other snake venoms, brings about paralysis of the nerve-endings, yet, death cannot be due merely to this cause because the quantity of the venom required to produce this effect alone would be far below the lethal dose. The majority of deaths on account of cobra bite may, therefore, be considered as generally due to the paralysis of the respiratory centre.

While opinion is unanimous that with lethal doses of the venom animals always die of respiratory failure before the stoppage of circulation and the manifestation of any sign of paralysis of end-plates of the skeletal muscles, it will only be of academic interest to attempt to find out to what extent the effect of the venom on the nerve endings is responsible for the respiratory symptoms, especially when it has been found that the antidotes against curare are not effective in cases of poisoning with cobra venom (Cushny and Yagi, *loc. cit.*). What will be of greater importance from a practical point of view is the determination of the action of the venom in sublethal doses, as this is likely to afford valuable clues relating to suitable methods of treatment and to the possibilities of utilizing the venom in minute doses for therapeutic purposes as has been done with other known poisons like strychnine, aconitine, etc.

But with regard to the effect of sublethal doses of the venom, the data published by various workers differ from one another to a great extent. While one has used 2 mg. of the dried venom per kilo weight of a cat intravenously and was able to keep the animal alive for nearly an hour (Cushny and Yagi, *loc. cit.*), another has administered 0.2 mg. per kilo weight to a cat by the same method and has found that the blood pressure dropped down to the zero level within a few minutes (Chopra and Iswariah 1931). Again, when 0.8 mg. of the venom produced on a cat weighing 2.52 kilos a persistent rise of blood-pressure, 0.6 mg. administered in the same way to a cat, 3.38 kilos in weight, reduced the blood-pressure to zero (Chopra and Iswariah, *loc. cit.*).

Two samples of the fresh dried venom when injected in 0.1 mg. doses into the femoral vein of cats anaesthetized with chloralose produced a marked and persistent rise of blood-pressure. The same effect

could not, however, be obtained with some other samples experimented with.

To see whether this rise in blood-pressure was accompanied by increased output of the heart, we perfused amphibian and mammalian hearts with fluids containing the venom in concentrations ranging from 1 in 10,000,000 to 1 in 5,000,000 and found that with the increased stimulation of the heart there was progressive decrease in the amount of outflow until at last the aortic pressure reached the zero level. This was apparently the result of the capacities of the chambers of the heart getting progressively reduced on account of the contractions of the muscles of the heart. The heart finally stopped in systole.

A frog's heart was made to cease beating by injecting a small dose of aconitine into the liver and 0.1 c.c. of a 1 in 10,000 solution of the venom was injected intrahepatically thereafter. Immediately after the injection the heart revived, and a second dose containing the same quantity administered in the same way a few minutes later increased the tone and amplitude of the heart-beats still further. Though stimulation was evident with the second dose, the rate of the beats began to get slower and slower until at last the heart stopped in systole.

Involuntary muscles of the intestines and uterus also reacted to cobra venom by a similar increase in the tone.

Yagi found that with the blood vessels of frogs and rabbits there were marked contractions of the vessels when the venom (0.2 c.c. of a 1 in 1,000 solution) was added to the Ringer's solution perfused through them and that the venom acted more peripherally than adrenalin on the muscle walls since the addition of ergotoxine to the perfusing fluid abolished the action of adrenalin on the vessels while leaving the action of the venom unchanged. The action of the venom, therefore, appears to be directly on the muscle substance itself resulting in in the tonic contraction of the muscle.

When the blood-pressure was persistently high there were dips in the tracing. This was probably because the heart working to maintain such a high pressure for a long time got tired in consequence and missed a beat occasionally. If the dose of the venom administered was small and the aeration of the blood satisfactory, the blood pressure gradually returned to the normal after some time. In some cases, after the blood-pressure had stood at a high level for a period the heart suddenly collapsed

and the blood-pressure fell to zero. In these cases, if artificial respiration was given, or if the quantity and force of the air pumped into the lungs were increased should the animals be already having artificial respiration, collapse of the heart was generally prevented. When the blood-pressure had dropped down, artificial respiration given immediately after has raised it. This shows that there is probably an increased resistance to the entry of air into the lungs as a result of which there is depletion of oxygen and accumulation of carbon dioxide in the blood, culminating in cardiac distress. The assumption that the increased resistance to the entry of air into the lungs is due to the tonic contraction of the involuntary muscles of the bronchi is supported by the observation that the venom induces a similar contraction of all other involuntary muscles.

Thus the muscles of the heart, intestines, uterus, blood vessels and bronchi all seem to react to cobra venom by tonic contraction.

The marked and persistent rise of blood-pressure appears, therefore, to be due to the combined effects of the tonic contraction of the heart muscles, of asphyxia consequent on the narrowing of the lumen of the bronchi and of general vascular constriction.

The cardiovascular effects produced by the administration of small quantities of cobra venom may be the reason for the use of the venom in ancient Indian medicine where it has been recommended for use as a cardiac tonic in extreme cases of heart failure. In typhoid, pneumonia, plague, cholera and epidemic diarrhoea, during the last stages, when every other medicine had been tried without benefit, it is said that cobra venom administered in very small doses in combination with mercury and sulphur is the only remedy that may be relied on to prevent collapse. Ghosh (1931) seems to have demonstrated the reviving properties of the venom by using carefully regulated doses in his experiments on plants.

But in view of the observations that have been made to the effect that cobra venom is not absorbed through healthy mucous membrane, it is inconceivable that it can effect any beneficial changes by oral administration unless it be that the other ingredients with which the venom is mixed renders it absorbable as a result of some physical or chemical changes or so modifies the condition of the mucous membrane of the alimentary canal that the venom is directly absorbed from the gastro-intestinal tract. The mode of action is not explained in

books on ancient Indian medicine and any claims as regards the alleged curative effects of the venom by administration by mouth have to be treated with reserve and caution in the absence of positive proofs in evidence thereof.

On the strength of an observation that there was progressive local anaesthesia after cobra bite and on the assumption that this may be due to the affinity of the venom for certain phosphatide constituents of nerves, the venom has been used to alleviate the pain and to delay the progress of certain types of cancer. Monaelesser and Toquet (1933), who were the first to observe these effects, injected, at intervals varying from 3 to 15 days, doses of the venom ranging from 2.5 to 20 rat units, the rat unit being the minimum toxic dose for a rat weighing 20 g., and found that some of the patients suffering from cancer derived benefit from the treatment. Fitzsimons (1929) also claimed that the venom of the viper or adder in non-lethal doses is a cure for epilepsy, chorea and certain other functional disorders of the nervous system.

But our observations on cobra venom go to show that its action is neither constant nor reliable and that the action differs a great deal between one sample and another and even between fresh and old samples of the same. The factors responsible for this difference are not definitely known and in the present state of uncertainty the indiscriminate use of the venom in therapeutics is likely to produce untoward results.

Cushny and Yagi (*loc. cit.*) observed that, of two samples of cobra venom they had procured for their investigations, one was 10 times as powerful as the other. Calmette and Massor (1914) found that the venom lost its initial toxicity even when kept in a closed vessel protected from light. Our experimental findings are also of a similar nature. The intensity of action exhibited by a fresh sample of the venom was very much more than that of an old sample of the same, though the latter had been kept in a sealed glass-tube in a cool, dark place. The results obtained with old samples of the venom were similar in every respect to those published by Chopra and Iswariah (*loc. cit.*). A corresponding deterioration was also noticed in regard to the toxicity of the venom on keeping. While the M. L. D. of a fresh specimen for cats intravenously was 0.075 mg. per kilo of body weight, the M. L. D. of the same specimen after it had been kept for about a year was found

to have changed to 0.5 mg. per kilo of body-weight of the animal. If, therefore, the properties of the fresh venom observed with experimental animals are to be made use of for therapeutic purposes, the cause of its deterioration should be determined and steps should be taken to ensure that its potency and toxicity are within safe margins by devising suitable methods for its preservation and biological assay.

As a result of the present study we are led to make the following observations: The activity of cobra venom is a variable factor and our present knowledge concerning it is not sufficient to warrant its use as a therapeutic remedy. Further work on factors affecting its potency, stability and toxicity has to be done before it can be safely used in the treatment of disease.

SUMMARY AND CONCLUSIONS.

1. Lethal doses of the venom of the Indian cobra cause respiratory distress followed by death due to central respiratory paralysis.

2. Sublethal doses of the venom so regulated as not to produce respiratory or cardiac embarrassment paralyse the motor end-plates alone some time after the administration of the venom.

3. The venom, in small doses, produces in experimental animals a marked and persistent rise of blood-pressure. This rise is due to the combined effects of the venom in causing asphyxia, stimulation of the myocardium and general vascular constriction. Only certain samples of the venom and at some undetermined stage of their keeping were observed to produce the marked rise of blood-pressure.

4. Injections of the venom in minute doses revive a heart that has been made to cease beating by the administration of aconitine.

5. The venom produces tonic contraction of all involuntary muscles.

6. There is a gradual diminution in the activity of the venom on keeping. Therefore, if the cardiac effects displayed by the venom on experimental animals are to be made the basis of its rational use in therapeutics, or if the venom is to be used as a remedial measure on account of certain beneficial effects it has been mentioned to produce in the treatment of cancer, etc., by a few workers on the subject, it is imperative that methods should first be devised for preservation of its potency and for its biological assay.

(*Ind. Jour. Med. Res.*, 22, October, 1934).

CLINICAL NOTES AND PRACTICAL SUGGESTIONS.

Neocaine Anaesthesia.

A number of substitutes for cocaine are available, but most of them are not so effective when compared to the amount of toxicity they produce. The advent of a better anaesthetic with more efficacy and less toxicity was welcome both to the surgeons and the general practitioners. This anaesthetic which goes by the name 'Neocaine' is valuable not only as a surface anaesthetic but as a regional and spinal one also.

Neocaine is not a derivative of cocaine but it is a synthetic product, being one of Benzoic Methyl Diethyl series. It is a colourless crystalline salt soluble in equal parts of water with a melting point at 156°C. It is essential that the powder should be protected from light and air. Neocaine is available in various forms. It is put up in glass tubes, each containing 2 capsules of 0.50 gm or 20 capsules of 0.50 gm. There are also boxes of 12 ampoules each containing sterile anhydrous powder in different doses of 0.10 gm, 0.12 gms etc. Each capsule of 0.5 gm dissolved in 100 cc of the saline gives us 0.5 per cent solution of Neocaine, if 2 capsules are used we get 1 per cent and so on. Any strength of the solution can thus be prepared according to the degree of anaesthesia required. Anaesthesia begins after 5 to 10 minutes after the last injection is given and it lasts usually for one and a half to two hours. In order to hasten and increase the action of the anaesthetic and to lengthen the duration of anaesthesia, Adrenalin (1 in 1000) can be added to it. Fifteen drops are generally required to every 100 c. c. of the solution. This solution does not decompose after this addition nor does it cause sloughing when injected into the tissues.

The ampoules of different doses described above are particularly meant for spinal anaesthesia. The solution is made with the cerebro-spinal fluid of the patient and injected into the canal. The technique is very simple. The cerebro-spinal fluid is allowed to flow into the ampoule of anhydrous Neocaine up to its neck. After a little shaking the powder is dissolved. The

solution is then taken into a syringe, which is then applied to the spinal needle. Half the solution in the syringe is injected slowly into the canal and then some more fluid is aspirated and this is then discharged slowly in four or five injections. After taking out the needle and making the patient lie flat on his back anaesthesia gradually develops which lasts nearly 1 to 1½ hours. There is only one drawback to this intra-spinal method viz fall of blood-pressure. To overcome this trouble any cardiac stimulant preferably the stimulant recommended by Dr. Labat is all that is necessary.

Favourable experiences gained with Neocaine have induced many surgeons as well as busy general practitioners to employ this in preference to Cocaine. To induce local anaesthesia for minor surgical operations the injection of the solution is given subcutaneously round about the part to be operated. The anaesthesia starts in 5 to 10 minutes and minor operations can be performed after this. The anaesthesia lasts for 1 to 1½ hours the most.

Surface anaesthesia is much more rapidly achieved with Neocaine than with Cocaine. In ear, nose and throat work a 2 per cent solution with the addition of Adrenalin (1 in 1000) is employed as a spray or paint, or by means of tampons of cotton-wool for anaesthetisation of the nasal mucous membrane. The blanching effect is enhanced by the addition of Adrenalin. The 2 per cent solution of Neocaine in nose and throat is as effective as 20 per cent solution of Cocaine. Moreover, the onset of anaesthesia is rapid and the duration more prolonged. For anaesthetisation of the larynx a 2 per cent solution is quite sufficient, whereas formerly for the same purpose 20 per cent solution of cocaine was required. Again the toxicity with Neocaine is far less than with cocaine. Under Neocaine anaesthesia operations can be performed on the tonsils, nose, accessory sinuses, larynx, trachea and in endoscopies of the oesophagus and the bronchi. Introduction of radium carriers into the larynx for tuberculosis of the same or into the neoplasms can be done easily when the parts are anaesthetised by means of Neocaine. The patients can retain the carriers for one or two hours without being disturbed or without any irritation under this anaesthesia. In muco-

tomies also a pure 2 per cent solution brings about effective anaesthesia. Application of 2 per cent solution of Neocaine is enough to reduce the pharyngeal reflex in specially sensitive patients.

Neocaine in solutions of $\frac{1}{2}$, $\frac{3}{4}$ or 1 per cent can be employed in Ophthalmology. These strengths are sufficient, say in corneal ulcer or to facilitate tonotomy in Glucoma. Three or four drops of $\frac{1}{2}$ per cent solution of this anaesthetic instilled into the eye is enough to anaesthetise it for scraping out foreign bodies from the cornea. Neocaine in 1 per cent solution is more than sufficient for any extensive operation on the eye-ball. This solution does not irritate the conjunctiva nor does it cause either hyperaemia or ischaemia. Neocaine anaesthesia starts almost within a minute in the eyes and lasts for 15 to 20 minutes. With Neocaine the pupils are never altered and the accommodation does not show any deviation. There is no increase in the intra-ocular pressure throughout the duration of anaesthesia. Due to all these advantages Neocaine is being at present used as an anaesthetic more and more in eye surgery.

In Dental surgery too this anaesthetic can be usefully employed for extraction and pulpectomy. There is a special solution known as Neocaine Surrenine which is a combination of Neocaine (5 cgms) and Adrenalin Borate 0.1 mgm. With freshly prepared solution maximum results are obtained. In urgent cases advantage should be taken of the sterile solutions in ampoules or flasks.

Due to the efficacy of Neocaine as a regional or spinal anaesthetic the profession is at present giving preference to it, more so because all unpleasant and threatening by-effects are eliminated through its use. The individual susceptibility to Neocaine is almost nil and other after-effects such as acceleration of the pulse, pallor, dilatation of the pupils which are usually attendant on the use of Cocaine are absent when Neocaine is employed. Neocaine has no influence on the sympathetic nerve and it is therefore devoid of any vaso-constrictor action. It does not cause hyperaemia as is the case with many other cocaine substitutes. It can be combined with Adrenalin without being decomposed. The effect of Adrenalin in

this combination is not unrestricted. Neocaine toxicity is far less than that of cocaine and is almost negligible when used in weak solutions. It does not irritate the tissues and it is completely and rapidly absorbed without causing any trace or ischaemia at the site of injection.

When spinal anaesthesia is induced by Neocaine we are able to avoid the stage of excitation which usually attends ether administration. There is also rapidity in the onset of anaesthesia as well as the possibility of its control. If the technique laid down for spinal anaesthesia with this drug is adhered to, there is no possibility of any mishap occurring. With Neocaine there is no danger of asphyxia or distressing nausea and vomiting, which usually follow any general anaesthetic. The incidence of post operative pneumonia or bronchitis is greatly reduced. Except for a little fall in blood-pressure there is no possibility of any bad effects or dangerous sequelae with this anaesthetic. For the fall in blood pressure the cardiac stimulant provided by Dr. Labat is generally all that is necessary. There is no contra-indication to the use of this drug on the score of age. Infiltration anaesthesia in children as well as the aged can be carried out most satisfactorily with it. Even cachectic and feeble persons undergo Neocaine anaesthesia without much trouble. Neocaine is therefore a valuable anaesthetic both to the specialist and the general practitioner and can be used with perfect safety.

Case: A young man was suffering from in-growing toe-nails for about a year. He came for my advice and I decided to operate on him on the spot. Without any previous preparation I cleaned the affected toe and the surrounding area and painted it with Tr. Iodine. Neocaine 0.5 per cent was injected round about the toe in three or four injections. The nail was then snipped in the middle and the affected portion with the in-growing tissue was removed en bloc. The usual toilet of the wound was carried out and the part dressed. The local anaesthesia with Neocaine was so complete and perfect that the patient never felt any pain at all. No supplementary or any other local anaesthetic was required.

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The problem of the enlarged prostate.

Every general practitioner comes across cases of enlarged prostate and it is his duty to prevent and even cure the septic condition of the urinary tract, which is apt to follow in such cases before or even after the operation. In the course of the development of the various symptoms incident to this syndrome there is a definite period from which all the symptoms are dated before or after sufficient obstruction to the urinary flow has occurred to bring about the presence of residual urine. Medical treatment is largely before the obstruction sets in, but even after the operation it is frequently necessary to keep the urinary tract aseptic. Ordinary antiseptics do not usually serve the purpose in such cases. The failure is often due to the fact that these antiseptics do not reach the tissues affected. These latter are not of sufficient strength and they do not reach the deeper layers of the mucous membrane which are usually involved in such cases. Particularly in these cases of enlarged prostate the damage done to the tissues by the pathogenic micro-organisms extends far below the surface. Hence there was a long-felt want for an antiseptic which, when taken internally, will exercise a continuous bactericidal action and at the same time penetrate the tissues. These cases of infection after operation on the prostate are almost always due to bacillus coli, and against that organism the exhibition of Bacte Coli Phage is most suitable because it fulfills all these conditions necessary for keeping up asepsis of the urinary tract in cases of enlarged prostate.

Bacte-Coli-Phage is a non toxic and non-irritating urinary antiseptic and being a mixture of B. Coli and Paracoli is selectively active against those organisms which are usually responsible for sepsis of the urinary tract. It is also useful in mixed infections and is quite free from toxic effects. In prostatitis therefore it is of utmost value in securing symptomatic relief, producing ease and comfort, and in combating the septic infection caused by the invading micro-organisms. Bacte-Coli-Phage exerts a powerful bactericidal action against staphylococci, streptococci and B. Coli and it is thus of great service in mixed infections. It fulfills all the desiderata of an ideal antiseptic in prostatitis. It has a

remarkable property of reaching the deeper layers where the septic process, particularly in chronic enlargement of the prostate, is often at its maximum. Whether the urine is acid or alkaline Bacte Coli Phage exercises its bacterio-static action equally well. It is administrable by the mouth and it has a continuous antibacterial effect on the entire tract. If the septic infection of the tract is thus prevented by the early administration of Bacte-Coli-Phage it will often be possible to postpone indefinitely the operation of removal of the prostate which is usually dangerous in old people. Against the internal administration of this Phage obviates the inconvenience of adopting local measures such as injections and irrigations, but it is necessary that massage of the gland and diathermic treatment should be utilised along with this remedy.

When the prostate becomes infected with resultant enlargement the urine which is retained in the bladder for some length of time becomes septic. These decomposition changes in the urine can be effectively prevented by Bacte Coli Phage. When this is dealt with actively further increase of untoward symptoms such as ascending infection along the ureters leading to pyelitis, pyelonephritis is also prevented. Being a combination of various cocci Bacte Coli Phage acts as an excellent antiseptic to the deeper structures as it has the power to penetrate into the tissues. The patient usually prefers taking this Phage to other repulsive mixtures as it is quite tasteless.

There is hardly any doubt that the urinary tract in enlargement of the prostate either before or after the operation is definitely benefitted by the use of Bacte-Coli-Phage. Flushing the urethra by means of diuretics is often beneficial but these only wash the upper surface of the infected mucous membrane and do not act on the cocci. Bacte-Coli-Phage acts on the invading organisms both on the surface as well as on those lying deeper in the mucous membrane. It is therefore an ideal remedy for this purpose. It can be administered orally as well as injected in the urethra or the bladder. With this remedy and genito-urinary passage can be rendered antiseptic more speedily than with diuretics or urinary antiseptics. Furthermore, there is hardly

any chance of ill-effects arising from its use. In the enlargement of the prostate in the pre-operative period Bacte-Coli-Phage will clear the infection of the urinary tract and the surgeon can carry out the operation with great confidence and the least fear of infection of the passage and the post-operative period it will lessen or even prevent any chances of the infection going further up viz. from the ureters to kidneys-

An illustrative case: The patient, an old man of 60, complained of great frequency of micturition for the last three years. The complaint when he came to me, was very bad. I found on examination the prostate much enlarged and hard but not fixed to the surrounding parts. There was no sugar in the urine which excluded Diabetes. The urine was however loaded with B. Coli and pus cells. I put him on Bacte-Coli-

Phage and alkaline medication. Vegetable diet was prescribed and he was given 3 to 4 drachms of Soda-Bi-Carb. At the start I injected 2 c.c. of the Phage subcutaneously and from the next day he swallowed 2 cc of it in half a glass of Vichy water once in the morning and once in the evening, long before each meal. Twice a week intra-vesical instillations of 10 c. c. of the Phage diluted in 50 c.c. of boiled lukewarm water were given. At the end of four weeks of this treatment the residual urine was much reduced, about 6 ozs. and the patient looked very much better. Frequency of micturition disappeared altogether and there was no heaviness and pain in the back. The urine was almost entirely free of B. Coli and pus cells. The treatment was continued for a month more and the patient was then sent to the surgeon for operative procedure.

MYCOOL

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Notes on Therapeutics, Diagnosis and other Medical Subjects.

Treatment of Acute Coronary Occlusion

By

EUGENE S. KILGORE, M.D.
San Francisco.

Absolute rest in bed is the treatment of greatest importance in coronary occlusion. Continue it from four to six weeks as a minimum; longer, if the blood pressure is elevated. Few medical emergencies are so poorly treated—often because the patient does not feel sick enough to call a doctor and often because of such diagnoses as ptomaine poisoning, acute indigestion, pleuritic pains, gastritis and neuritis. A large number of the cases are atypical, judging from the descriptions in the medical books and periodicals—the symptoms of collapse, anginal pain, etc., not being so pronounced as one expects. Many coronary occlusions occur without symptoms indicating infarction and others occur with symptoms that are mild and transitory. It is always an emergency, even though the patient considers the symptoms trivial.

Rest is conducive to healing of the infarcted area. Drugs are of secondary value. Pain is usually the first symptom demanding treatment and morphine is usually administered liberally, but since the pain is due primarily to deficient oxidation in the infarcted area, oxygen (administered under a modern tent providing a full fifty percent oxygen atmosphere) will relieve it in many or all cases and may diminish the area of necrosis. Oxygen should not be reserved, as heretofore, only for those cases exhibiting cyanosis or dyspnea.

To give digitalis is a mistake in most cases, because of its action in reducing conductivity and increasing irritability. In general, it should not be used unless clearly indicated for atrial fibrillation or congestive failure. If stimulation is really indicated by a very poor circulation, caffeine recommends itself because of its probable dilating effect on the coronary arteries. Strophanthine and epinephrin should be reserved for desperate emergencies. In heart-block I use oxygen as first choice, then epinephrin in small, frequent, subcutaneous doses.

3

Ventricular fibrillation probably accounts for a large proportion of the sudden deaths from coronary thrombosis. It may result from large or small infarctions and often comes as the first disorder of the heart—beat mechanism. It should be prevented, if possible. Quinidine has been found to inhibit ventricular fibrillation and I prescribe it routinely every eight hours, in 0.2 Gm. doses, during the first two months following coronary occlusion. I also include 0.6 Gm. of theobromin-sodium salicylate with each dose of quinidine, in the same capsule, during the first ten days because of its probable dilating effect on the coronaries.

Adequate nourishment is important and should include a liberal supply of vitamins, especially vitamin C in the form of fresh citrus fruit juice. Dextrose is especially valuable in threatened heart failure and may be given intravenously, in small amounts, frequently, or by hypodermoclysis. In concomitant diabetes mellitus or syphilis, specific treatment should be neglected until the acute stage of the thrombosis is passed.

J.A.M.A., Feb. 4, 1933.

Spinal Anesthesia

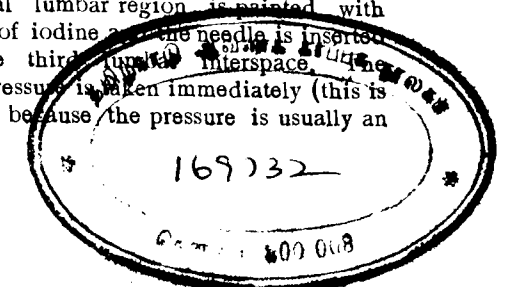
By

DRS. J. O. BOWER, J. H. CLARK and
J. C. BURNS.

Philadelphia, Pa.

The new technic which we are presenting is especially adaptable to the beginner, in that it controls upward diffusion of the anesthetic. As a diluent we have selected the patient's own blood serum, because it is diffusible and non-irritating and is heavier than cerebrospinal fluid. The blood is usually withdrawn the evening before the operation and immediately centrifugated for 15 minutes at 1,500 revolutions per minute.

At the time of operation, 3 cc. of serum is mixed with 100 to 150 mgm. of procaine hydrochloride. The patient is placed on the operating table in the upright position, the dorsal lumbar region is painted with tincture of iodine and the needle is inserted into the third lumbar interspace. The spinal pressure is taken immediately (this is routine), because the pressure is usually an



indication of the amount of fluid in the canal. Then the serum-anesthetic mixture is injected *very slowly*, over a period of 40 to 60 seconds.

If the patient is placed on the operating table with the torso at a 135-degree angle with the thighs, the perineum, thighs, feet and legs will become anesthetized, usually without paralysis of the motor nerves. If higher anesthesia is desired, the patient is placed in the supine position for three minutes; then the head of the operating table is raised to a 160-degree angle. Anesthesia to the anterior superior spine is usually obtained in this way.

Using this technic, we have performed operations on the lower extremities, the perineum, the inguinal region and the abdomen below the umbilicus. We have not perfected a technic for the upper part of the abdomen. Following the use of 100 mgm. of procaine hydrochloride, anesthesia of the perineum has persisted for two hours and 35 minutes. The duration is less with change of position to obtain higher anesthesia.

With this method there is less possibility of the drug affecting the nerves of the heart and of the respiratory muscles. High diffusion can occur, however, and patients should be selected for this technic. We have observed a rise in systolic blood pressure in 68.67 percent of cases; no change in 19.28 percent; and an initial decrease in 12.05 percent. When decrease occurred, it was most marked when anesthesia extended above the costal margin; was less when between the iliac crest and costal margin; and lowest when below the iliac crest. In two instances the cardiac and respiratory nerves were partially paralyzed and the diastolic and systolic pressures could not be taken. In one of these cases the high diffusion was due to a too rapid injection of the anesthetic. We have always attempted to limit the diffusion of the anesthetic to the upper border of the sixth rib.

This technic is safer than others reported and thus will decrease the mortality, which is particularly high for the beginner.

J.A.M.A., Jan. 28, 1933.

Hydotosyl tablets reduce Systolic Blood Pressure.

A Five-Year Study of Abortion

By

RAYMOND E. WATKINS, M.D.

Portland, Ore.

This study includes the 341 cases of abortion that were taken care of in the Multnomah County Hospital, from January 1927 to January 1932. They were classified as follows: threatened, 18; inevitable, 61; incomplete, 261; therapeutic, one. The abortion was spontaneous in 169 cases. In 149 cases it was induced, either by the patient or an abortionist. In 22 other cases the passage of an instrument or foreign body into the uterus was suspected. The catheter was the most popular instrument used for self-abortion, being resorted to in 34 cases. The slippery-elm stick was second in popularity, being used by 24 patients. Other appliances used were crochet hooks, nail files, syringe tips, a nut-cracker and a case knife. Among the different drugs used were ergot, turpentine and quinine, the last being the most popular.

Previous abortions were admitted by 176 patients: 88 having had one, 42 two and 27 three; one had had eleven. In our series, 133 occurred between the first and second months of pregnancy, and 101 between the second and third months. The others occurred during the first month, or after the third—some as late as the twenty-eighth week. Pain, chills, fever, bleeding, nausea and vomiting were the most common symptoms.

The temperature was normal in 34 patients throughout their hospital stay. Fever was present in 307 cases. In 193 cases the temperature did not rise above 100.6°F. In 144 cases, there was sepsis, with temperature above 100.6°. The highest temperature reached was 105°.

Thirty-nine (39) patients had a severe, prolonged illness (all were cases of incomplete abortion), but only two died. Complications in these 39 cases consisted of pelvic cellulitis in 14, pelvic abscess in 3 phlebitis in 2, and suspected thrombophlebitis in 8.

Conservatism is necessary in handling abortion cases. Our routine orders are as follows: (1) Absolute rest in bed; (2) a nourishing diet, forcing fluids, and plenty

of fresh air; (3) elevate head of bed 12 inches, except in severe hemorrhage; (4) ice bag to pelvis; (5) codeine or morphine for pain, as needed; (6) no vaginal douches; (7) no vaginal examination, except by the attending gynecologist or by his special order; (8) for bleeding, give one-half dram (2.0 cc.) fluid extract of ergot every four hours, supplemented with pituitrin if necessary. Control dangerous hemorrhage by special means, such as packing the uterus or removal of the placenta, if indicated; (9) leukocyte count and sedimentation rate determined every fourth day, as a guide in management; (10) no surgical interference unless an abscess is pointing extraperitoneally, such as culdesac or abdominal wall abscess; (11) five days or more of normal temperature, absence of leukocytosis and a normal sedimentation rate are desirable before removing the remaining placenta, if such is necessary; (12) give dextrose or saline solutions intravenously, subcutaneously and rectally in dehydrated cases or as needed in hemorrhage, shock or sepsis.

Under such management, 225 of our cases recovered without operative invasion of the uterus. In 36 instances, hemorrhage was so marked that immediate surgical interference was necessary, the placenta being removed, either by sponge forceps or gentle curettage. Retained placenta, causing moderate bleeding, was the indication for evacuation of the uterus in 78 others. There were 3 deaths in 341 cases—a mortality rate of 0.88 percent.

A.J. Obst. and Gyn., August, 1933.

Life Dependent On Chemical Reactions.

(By a correspondent)

In his presidential address to the Indian Chemical Society at Calcutta on January 4, Professor N. R. Dhar, showed how life depended on chemical reactions which were really combinations of the food materials with the oxygen of the air inside the body. It was well known that food materials did not combine directly with oxygen present in the air, but inside the animal body and in plants they readily combined with the oxygen of the air. The process by which this happened gave rise to a problem and on the solution of which chiefly depended the mystery of life.

From the experimental work carried on in the Chemical Laboratories of the Allahabad University for nearly twenty years by the author and his colleagues, it has been concluded that the combination of the food materials with oxygen is chiefly due to the following agencies:—

OXIDATION

1. Substances like ferrous oxide, manganous oxide, glutathione etc. which are capable of directly combining with the oxygen of the air. This oxidation induces or starts the oxidation of food materials in the animal body or plant tissues.

2. The oxygen and the food materials can also combine on the surface of the plant and animal cells.

3. The presence of small quantities of iron and possibly traces of manganese and copper, which have been found experimentally to be capable of helping the combination of food materials with oxygen.

4. Mild alkalies like sodium bicarbonate, sodium tartrate, sodium citrate and sodium phosphate have also been found to be useful in food oxidations.

5. Sunlight, which is of great benefit in the combination of food materials with the oxygen of the air.

6. The internal secretions in the body are also of great assistance in the proper oxidation of food.

USEFUL DEDUCTIONS

The following useful deductions can be made from the experiments on the phenomenon of oxidation by Prof. Dhar and his collaborators:—

1. As small quantities of iron compounds help the proper oxidation of food materials in the body and as all leafy vegetables (Saks) contain small amounts of iron, they should form a part of our daily food.

2. Milk and its products like curd, cheese, etc., which are excellent food materials containing all the necessary ingredients of food materials, carbohydrates, fats and proteins are also rich in vitamins A, and D., which are essential for healthy life, should form an important article of food, as the vitamins have been found to be helpful in food oxidations.

3. Tomatoes, containing vitamin B and C, lemons, containing vitamin C, and fruits,

also containing vitamin C, are of considerable importance for healthy life. As vitamin C is easily destroyed by heat, all these food materials should be taken in a raw condition as far as possible. The English proverb, "An apple a day, keeps the doctor away," should be changed to "A tomato a day keeps the doctor away."

BUTTER AND GHEE

4. Butter and good quality ghee, containing vitamins A and D, and eggs, containing vitamins A and D and small amounts of B, are also very important food materials from a scientific point of view.

5. Sprouting grams and wheat contain vitamin B, which avoids beriberi. Rice containing very little vitamin B, but better quality proteins than in wheat is also an important article of food. It is highly desirable that milk and its products, sak (leafy vegetable) some butter and ghee, chapati and with some rice, tomatoes, lemon, and if possible, eggs and fresh fruits should be eaten every day for an active, healthy and intellectual life, for which good quality protein (animal protein) present in milk, and eggs are much more helpful than vegetable proteins, contained in dal, grams, pulses and wheat.

The problem of protracted fasting has come into prominence. From the investigations of Professor Dhar and his colleagues, it has been concluded that a mixture of soda tartrate, soda citrate and soda bicarbonate in drinks is more efficient in the treatment of protracted fasting and diabetes than soda bicarbonate alone.

VALUE OF SUNLIGHT

As sunlight helps the oxidation of food materials and as it penetrates the skin, many diseases are avoided in tropical countries more readily than in temperate regions. Rickets, pernicious anaemia and colds, measles, cancer, etc., occur much less frequently in India than in Europe or America. It is believed that this is due to the beneficial influence of sunlight, which helps the proper oxidation of food materials. It is no wonder therefore that the sun has been worshipped as deity almost all over the world.

(Extracts from *The Times of India*).

News and Comments

Superfluous Medical Council: When the Indian Medical profession has been agitating to remove the sores afflicted to the profession by the Indian Medical Council Act, the sores are made more painful by the special provisions with respect to medical practice by British persons in India, exhaustive details of which are found in the published India Bill. The India Bill in the form presented by the J. P. C. will soon be passed by the British Parliament and no Federal or Provincial Government shall have power to preclude from practice in India any person possessing qualifications recognised by the General Medical Council. Privy Council has been made the final authority for appeal against the decision either of the Indian Medical Council or the General Medical Council in respect of determining the recognition of the medical qualifications by both the Councils. Our readers might remember that at the time the Indian Medical Council Bill was on the anvil of the Legislative Assembly, a section of this body pressed the Government of India to incorporate clauses in the Bill for effecting conditional reciprocity with regard to recognition of foreign qualifications; and as a compromise the Indian Medical Council Act set out in the first schedule, the medical qualifications granted by medical institutions in British India, which are to be recognised for the purposes of the Act and gives the Council power to secure by inspection an adequate standard of proficiency which is to be effected either by withdrawal or approval of recognition of the medical educational institutions. In the second schedule of the Act are set out qualifications granted by licensing bodies in the United Kingdom which qualifications are to be recognised by the Indian Medical Council. Such a recognition is to continue unaltered for a period of 4 years after the passing of the Indian Medical Council Act, but the Indian Council is empowered to enter into negotiations with the authority in any country outside British India for the settlement of reciprocal recognition of medical qualifications. So, after a period of 4 years the Indian Council has power either to withdraw recognition of the qualifications granted by medical institutions which do

not recognise the qualifications recognised in India by the Indian Medical Council.

Now that the India Bill is contemplating to make the Privy Council supreme with regard to the questions of recognition of medical qualifications both in India and Great Britain, there will be no need for the Indian Medical Council to exist as a separate body.

Indian Medical Council Election:

On account of the demise of Dr. Krishna Menon a vacancy has arisen in the Indian Medical Council for a member to represent the registered practitioners of Madras Presidency, who are recognised by the India Council Act. So far three medical practitioners, Dr. Williams, Dr. Rajan and Dr. Satagopan have announced their candidature out of whom the first has since withdrawn. So there are only two in the field at present. Dr. Rajan is a Madras licentiate who later qualified himself as M. R. C. S., L. R. C. P. (London). Dr. Satagopan is a graduate of the Madras University and is an M. D. of the same university.

The history of the Indian Medical Council Act is fresh in the minds of the electorate who has to choose one to represent them in the Indian Medical Council. The enactment has been found very defective regarding the interests of the Indian Medical profession. The profession is satisfied that the only purpose the Act serves is to force on them the will of the general medical council. The actual working of the Council has also demonstrated without any doubt that the council as it is now constituted cannot function as an independent body. The passing of India Bill by the parliament will make the Indian Medical Council a purposeless constitution. So, the Indian Medical Council Act and its working for the last two years have raised several issues. In the interest of the profession we would suggest to the candidates to fight the election not on individual merits as members of profession nor on their achievements as such. The candidates will do well to let know the electorate their views as the Act now exists and give an idea of the programme they have in view for making the Act really useful to the profession. They should also express their opinion on the effects the India Bill is likely to have on the working of the Act in case the reported provision

which makes the Privy Council and not the Governor-General-in-Council the final authority of appeal about the decisions of the Indian Medical Council, finds a place in the India Reforms Act.

The result of a fight in election based on the Act and its working will also convince the Government whether the policy of placating and manoeuvring so far adopted by them due to outside influence, is approved or condemned by the members of the profession to whom the Act has to serve.

Indian Medical Association: We draw the attention of our readers to the appeal issued by the joint secretaries of the Indian Medical Association requesting the office bearers of the existing branches of the association throughout India to render all possible help to Col. Bola Nauth, the President of the association who on his own accord has taken up the responsible task of organising branches wherever they do not exist in all important cities and towns in India. It is the intention of Col. Bola Nauth to visit important places in Bihar, Orissa, Madras, Bombay, Hyderabad, Baroda and other native states in and surrounding the Bombay presidency. Col. Bola Nauth wishes to know from all those who are interested in the Indian Medical Association the difficulties experienced in starting branches so that he may suggest ways to get over them. His services are available for this purpose to any practitioner at any station.

The medical profession throughout India will do well to take advantage of the offer of the services of Col. Bola Nauth and bring about in India an association of the importance and strength similar to that of the British Medical Association which has on its roll almost all the qualified medical practitioners in Great Britain numbering nearly 34,750. The profession in India is quite conscious of the influence and power wielded by the British Medical Association in safeguarding the interests of the profession in Great Britain. The British Medical Association has been able to start and control schemes of utility both to the profession and the public such as National Health Insurance, Municipal Health service and such and similar organisations which have materially helped the problem of unemployment. The British Medical Association has

been vigilant in guarding the interests of its members in service. The concern shown by this association in the prosperity of the I.M.S. and R.A.M.C. and other military services are well known in this country. In India the strength of the qualified medical profession is fabulously very low. It is reckoned that the total strength of qualified practitioners in India will be some where near 30,000 a number which is lower than the total strength of the British Medical Association which as mentioned above is 34,750. The affairs of the qualified medical profession in India are certainly of no less magnitude than those of the medical profession in Great Britain and we should say they are more varied and complicated too on account of the existence of several recognised systems of medicines. The fact that the Allopathic system was introduced in this country through the agency of Government paid service, has made the position of the profession much more complicated. It is therefore essential that the profession should unite itself in greater strength and vigour than exhibited by the British Medical Association. There are practical difficulties in the way, the most important of which is the existence of castes in the profession. These castes are of different varieties. The existence of different grades of practitioners both in service and private practice does not permit the members of a particular association—though that association might not itself observe castes—the enjoyment of equal rights and privileges. So the rank and file in the profession in India feel the necessity for grading the subscription for admission as members of Indian Medical Association in different scales. Many practitioners both in this province and other provinces have been suggesting to us to agitate for reducing the subscription. In a letter published in December issue of the official journal of the Indian Medical Association, we find a sub-assistant surgeon belonging to Madras service suggesting a graded scale of subscription of Rs. 12 and Rs. 5, a year the former to be received from those whose income is above Rs. 250 and the later from those whose income is below that amount. It will be a very difficult task to assess the income of the members of the profession except of

those who are in Government service and who have no other means of additional income; nor the principle of graded scale of subscription is a sound one. But the existing feeling cannot be easily got over and something has to be done in this direction. Other difficulties are of minor importance. Before closing we appeal to the qualified professionals in this country to take advantage of the service of Col. Bola Nauth and co-operate with him and help him to increase the strength of the Indian Medical Association. Without such a central body to represent the profession little or nothing could be achieved by the profession. The adage, 'God helps those who help themselves' is worth remembering by all concerned who are interested in the uplift of the medical profession in this country.

Double Nomination: In the interests of the harmonious working of the medical councils in the provinces we commented in these columns last August about the haphazard way nominations were made to the provincial councils and suggested how the nominations should be made to represent variety of interests and not the interest of individuals. At that time a vacancy for a nominated seat was impending on account of the efflux of time of one of the nominated candidates, the late Dr. T. Krishna Menon. Ever since the Madras Medical Council came into existence, the Government nominated a practitioner holding qualification of Diplomate of a recognised medical college as this class of practitioners in the third group of the medical register could not expect to be returned by open competition. The practitioner who was nominated last to represent the medical college diplomates was Major Coshan I.M.D. (retired), who was appointed by the Madras Medical Council as the Registrar in 1932. The Government did not nominate another Diplomate for this vacancy. We pointed out this omission and hoped that the Government would note it on a future occasion.

The late Dr. Krishna Menon was a very useful member of the Madras Medical Council but it could not be said that he represented any particular interest or class. A person of his qualification had chances of entering the council by open competi-

tion. We learn that Dr. Satagopan has been nominated in the place of the late Dr. Krishna Menon. By doing so the Government have not only violated the time honoured convention of nominating a Diplomate of medical college but deprived the graduates of Madras Province of their right of choosing a representative whom they thought to be best fitted to represent them in the Madras Medical Council. It may be remembered that soon after the demise of Dr. Krishnamurthi Aiyer the elected member representing the graduates in the Madras Medical Council, the vacancy was notified and two candidates were duly nominated by the electorate one of whom was Dr. Satagopan, the other Dr. U. Krishna Rau. The candidates had been vigorously canvassing the support of the electorate. On the eve when the voting papers had to be despatched Dr. Satagopan announced in the news papers that he had withdrawn from the contest. This withdrawal did not only cause disappointment to the graduates but has given room for not only surprises but surmises on account of Dr. Satagopan announcing his candidature for the vacancy in the Indian Medical Council caused by the demise of Dr. Krishna Menon. The effect of the nomination of Dr. Satagopan to the Madras Medical Council has been of double nomination to the same Council one by the Government, and the other by the graduates. There is a talk that the nomination of Dr. Satagopan is an ingenious tactics. We do not know whom to congratulate for this resourceful ingenuity.

A Request: We have received a few letters from the private practitioners in Secundrabad, Hyderabad and the suburbs of these towns requesting us to point out to the authorities in charge of state hospitals in Secundrabad and the Nizam's Dominions the desirability of introducing the honorary system of medical relief. We are told that the K.E.M. hospital Secundrabad accommodates over 200 patients and has separate blocks for the treatment of medical, surgical and maternity cases and there are as well equipped hospitals in the Nizam's dominions. State hospitals whether under British Government or Indian states are usually understaffed though they are otherwise well equipped. In Great Britain and other countries where hospitalisation

was initiated by honorary medical service, there are proportionately less beds entrusted to the care of one medical officer than is the case in India where hospitalisation began with paid service. So, in western countries more money could be spent for the actual comforts of the patients than on salaries. The reverse is the case in India. The Madras Government was the first in this country who introduced the honorary system of medical relief in a systematic way. The Government of Bombay and Bengal have also introduced the honorary system in the capital cities of those two provinces but not as elaborately as in Madras province and in those provinces the honorary system though not ideal, has been working satisfactorily. The honorary system of medical relief serves two important purposes. It gives exceptional opportunities to the honoraries to gain knowledge and experience and the state gets free service from the medical officers and consequently hospital administration becomes less costly. Apart from these considerations it should be the concern of the state to see that the public get the services of experienced medical practitioners. This is only possible if the private practitioners are given facilities to work in well equipped state hospitals. The medical advisers to the Residency at Secundrabad and to H.E.H. the Nizam's Government are both from Great Britain who have intimate knowledge of honorary system of medical relief. They need no advice and we trust both of them will soon initiate the system of honorary medical relief in the medical institutions under their charge.

Vaccination Certificates: Some time ago under the caption "Gratuitous Insult" we commented in these columns on a circular issued by the Director of Public Health, Madras regarding the granting of vaccination certificates to passengers going to foreign countries. It was mentioned in that circular that the vaccination certificates issued by Registered Medical Practitioners other than Civil Surgeons, Port Health Officers and District or Municipal Health Officers have to be countersigned by one of such officers. We now learn that similar circulars have been issued by the Public Health Department in every province and the origin of this circular is from the Government of India. The Iraqi Ministry

for Foreign affairs and certain African Governments seem to have brought to the notice of the Government of India that false vaccination certificates were issued to certain passengers who embarked from India and according to the International Sanitary convention agreed to in 1926 any Government has its own option to determine the procedure to be adopted for safeguarding the health of arrivals in the ports belonging to such government. Consequently the Government of India had to agree to the procedure adopted by foreign governments in demanding countersignature on vaccination certificates which procedure being considered to ensure the reliability of the certificates with regard to their veracity and other details. It is a pity that the Government of India did not consider about the self-respect of the medical profession before adopting the procedure dictated by foreign governments. Fraud and other crimes are not peculiar to the medical profession itself. The registered practitioners are subject to stringent statutory disciplinary control of the medical councils. The Government of India ought to have demanded the identity of the authors of false certificates complained of by the foreign governments and ought to have brought the offenders to book. They should have also brought to the notice of

such Governments the existence of the medical councils in this country who have as much or more efficient control over registered medical practitioners including those under the service of the Government. The medical councils have power to erase the name of offending registered medical practitioners and deprive them of all the rights and privileges including that of issuing certificates. Such a power cannot be exercised by the Government even over their own employees. When we commented on this subject on the last occasion we drew the attention of the President, Madras Medical Council to take the initiative in pointing to the Government that the circular in question was an insult to the profession. We hoped that the President of the Madras Medical Council would do the needful in this matter. As he has not done so till now we will suggest that the elected members of the Madras Medical Council will take up this question and move the council to recommend to the Government of Madras the necessity of withdrawing the circular under reference. In the meanwhile we also expect that the elected members of the provincial medical councils in other provinces will not lag behind in removing this slur on the medical profession in their provinces.

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INFLAMMATION

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THE DENVER CHEMICAL MFG. Co., NEWYORK CONGESTION.

Madras Medical Register: Our readers might remember that ever since THE MEDICAL PRACTITIONER came into existence we have been pointing out in these columns the grave irregularities committed by the Registrar Medical Council from 1924 by not publishing the Medical Register in time as demanded by the provisions of the Medical Act. The rule regarding the publication of the Registrar lays down that "the Registrar shall in January cause the Medical Register to be published corrected up to the 31st December preceding", but the Register was invariably published very late one or even two years after time and the Register for 1931 was not published at all. The Medical Council and even the Government did not take any notice of this serious omission on the part of the then Registrar in spite of the irregularity being brought to their notice, till at last, the sins of omission and commission at the office of the Medical Council accumulated to such an extent that it was no more possible for the council to wink at the grave irregularities which manifested themselves in fraudulent registrations, defalcation of the funds of the council and various other crimes which could not be condoned. Matters reached a climax and the Registrar who was responsible for maladministration had to resign his office and the then clerk had to stand the test of criminal prosecution for defalcation and was committed to jail. During the brief period of about a year and a half after the termination of the services of this Registrar and the appointment of the present Registrar, the affairs of the council could not be said to be satisfactory. We do not wish to reiterate what we have been mentioning in these columns about the affairs of the Madras Medical Council. Suffice it to say the agitation conducted by us has not been in vain. As mentioned by us in these columns some time ago one of the staff of the Surgeon General's office Mr. J.P. Pinto, B.A., is now the Registrar of the Madras Medical Council and during the brief period of his regime the affairs of the council have taken quite a different turn for good. He had insurmountable difficulties to set the office in order. Many of the records including cash book etc., having been destroyed during the dark period referred to above. In spite of such difficulties, it was creditable that this officer strained every nerve of his and within a year of the period of his office

he was able to publish the Register for 1934 in time. We congratulate the Registrar most heartily and hope that he will conduct the affairs of the council in such a satisfactory way that the profession and the public will soon forget the effects of the bad regime of his predecessors.

Subsidised Medical Practitioners:

The subsidised medical practitioners of Guntur District met in conference at Guntur on 20—1—35 and passed several resolutions regarding their grievances in connection with the working of the rural medical relief scheme. The resolutions appear in the Correspondence Columns. The hardships of the subsidised practitioners in Guntur District are the same from which their brethren suffer throughout the province. Prominent members of the public whether officials or non-officials, have been preaching whenever occasions arose advising medical practitioners to settle themselves in rural areas but very few amongst them have come out so far to sympathise with the practitioners already settled in villages and the grievances of these unfortunate medical men are multiplying every day. The District Medical Officers are the consultants on the spot to whom references are made regarding subsidised rural medical relief scheme either by the Government through the Surgeon-General or by the local bodies and many of the difficulties of the subsidised medical relief schemes will be mitigated if not removed in case District Medical Officers interest themselves about the scheme more than they usually do. In almost all districts the District Medical Officers are the presidents of the District Medical Associations of which a fairly good number of subsidised practitioners are members. There is nothing to prevent the subsidised practitioners or their friends in the district medical associations to discuss about the problems concerning the welfare and prosperity of its members and the opinion arrived at by the district medical associations will have far reaching influence both on the authorities as well as the public. Problems of medical relief should be the first concern of any medical association and the rural medical relief scheme must be made the subject of discussion at the monthly meetings of all existing district medical associations. We trust the Presidents of all the District

Medical Associations will ventilate the grievances of the rural medical relief over and over again till the Government, local bodies and the public are made to feel their responsibilities towards the scheme of rural medical relief which if handled tractfully will solve the question of rural re-construction in which alone the true salvation of India lies. Ever since the rural medical relief scheme came into existence, the practitioners belonging to the scheme have been making representations to the Government and local bodies, and little or nothing had been achieved by them by having recourse to pious prayers. We would suggest to the rural medical practitioners and the members of the medical profession in general, to find out ways and means to educate public opinion about the problems of medical relief whether it be in rural or urban areas by all possible ways individually or with the help of the existing associations of which they are the members. Self-help is the best help to be relied upon.

Congratulations : We congratulate Dr. U. Krishna Rao on his having been return-

ed to the Madras Medical Council without an actual contest as Dr. Satagopan his rival retired from the field of contest. A large number of the personal friends of Dr. Krishna Rau entertained him at a dinner, at Modern Cafe to which were invited prominent members of the profession both in service and outside. There was a choice and representative gathering. The toast of the chief guest was proposed by Dr. Sanjiva Rau who said that the younger generation amongst the graduates identified themselves with the success of Dr. Krishna Rau and it was a victory to the youth movement. Dr. Krishna Rau made a suitable reply and gave the credit of his success to his father Dr. U. Rama Rau. The toast of the guests was proposed by Dr. P. Rama Rau and was answered by Dr. V. Rama Kamath and Dr. K. Srinivasa Rau both of whom congratulated Dr. Krishna Rau and wished him long life of usefulness.

APPEAL TO THE MEMBERS OF THE MEDICAL PROFESSION

Our appeal requesting such of our readers who have been receiving complimentary copies of The Medical Practitioner has not been in vain. There was response though we have to admit it was not to our expectation. It is just possible that many of you missed to read the appeal published on page 49 of the November issue. May we therefore request those who did not read that appeal to refer to it. As mentioned in our previous appeal The Medical Practitioner is the only non-sectarian medical journal which has been doing propaganda and service to the profession as a whole and the Medical Practitioner has been serving all sections in the profession in service and private practice including the subsidised rural practitioners and fighting fearlessly for the redress of their grievances. Though the journal is published in the capital city of Madras Province, we have been attempting to make it an organ to serve the profession throughout India has only about 30,000 qualified medical practitioners to satisfy the needs of 350 millions of her population, a fabulously low number while compared to the ratio of the population in other civilised countries. Yet the problem of unemployment is felt keen. By the word unemployment we do not mean service under any body but service as independent practitioners. We have been pointing out, in the columns of THE MEDICAL PRACTITIONER ways and means with which the members of the profession might organise themselves and be useful to the public and to themselves. Nothing can be ventured, nothing gained unless the profession agitates and makes itself felt as useful agents of service to the suffering humanity and a journal of the type of THE MEDICAL PRACTITIONER is needed by all sections of the profession for such agitation.

Please respond to our appeal by filling in and returning to us the annexed post-card and supply us with necessary sinews by enlisting yourself as subscribers. The subscription is only Rs. 2 a year an amount which scarcely pays the cost of the journal yet it may help to move the wheels of the machine of service and propaganda to the profession,

V. RAMA KAMATH.

OBITUARY

Dr. B. S. MALLAYA, M. B. & C. M.

We regret to record the death of Dr. B. S. Mallaya, M. B. & C. M. at his residence, Egmore on 29th January 1935 at 9-35 P. M. at the age of 54 after a brief illness. On 23-1-35 Dr. Mallaya took ill due to an injury on his finger result of a knife wound during an operation which turned septic. In spite of careful attention by eminent physicians and Surgeons who attended on him, diabetic coma set in to which he succumbed peacefully. Dr. Mallaya was an old student of the Canara High School, Mangalore. After

passing F. A. at the Government College, Mangalore, he joined the Madras Medical College in 1899 and after a brilliant career at the college was appointed as Assistant Surgeon in 1916. He first served as Health Officer at Madura and later transferred to the Government Maternity Hospital, Madras and after a few years service in that hospital was posted as Assistant Professor of Surgery at the Madras Medical College. He resigned Government service in 1922 and set up private prac-



tice in Madras. He enjoyed extensive lucrative practice and was very popular among both the rich and the poor. Dr. Mallaya was an elected councillor of the Madras Corporation for over 10 years. He took keen interest in questions relating to sanitation and water supply. He loved sports and was a member of the leading clubs in the city. In 1926 he was elected to the Madras Legislative council on Swarajist ticket and represented the city non-muhammadan constituency till 1929. He

was recently elected on the Congress ticket to the Legislative Council to fill in a casual vacancy. He took his seat on 21-1-35 and attended the Council for three days when he took suddenly ill. The funeral took place on the 30th and was largely attended by many prominent citizens both officials and non-officials. On the cremation ground appreciative speeches were made by his friends and admirers who spoke about his ardent patriotism and the meritorious services rendered by him as the city father and as a member of the Legislative Council.

Dr. Mallaya leaves behind, his wife two sons and three daughters with whom we mourn his loss. May his soul rest in peace.

Correspondence Reports, Etc.

**Resolutions passed at the fourth
Conference of the Subsidised
Medical Practitioners of
Guntur District held at Guntur
on 20-1-1935.**

1. This conference reiterates such of the resolutions passed at the IV conference of the Provincial Rural Medical Practitioners Madras, not given effect to, by the Government and requests them to give the practitioners all facilities to continue their work in the rural areas and be induced to settle there permanently by the redress of their existing grievances, (1) to give a decent increment in subsidy to the Practitioner (2) to supply such of the dispensaries, where the practitioners treat on an average more than 30 patients a day, medicines, proportionate to the extra attendance, (3) to permit a practitioner from absenting himself without loss of subsidy from the village for 30 days in the year, exclusive of Sundays and recognised holidays either at one single time to a maximum of 15 days, or on a number of occasions according to his requirements.

2. This conference respectfully requests the Government to modify G.O. No. 2480 P.H., dated 25-10-34, requiring the practitioners to bind themselves in their agreement "that they shall be available for treatment of the poor on week days between the hours of 7 and 10 in the mornings and between the hours of 3 and 5 in the evenings and on Sundays between the hours of 7 and 10 in the mornings and also be available for urgent cases on all days and at all hours, whether during day or night" and requests to provide in the agreement "that the subsidised practitioner shall ordinarily be in his place of work to attend to the necessitous poor only in the mornings, if need be, Practitioners may be required to work even till 11 or 11-30 A.M."

3. This conference resolves to the approval of the letter of the secretary Provincial Rural Medical Practitioners Association, Madras, to the Government on the "subject of working hours for subsidised practitioners."

4. This conference requests the government, not to advise the district boards to transfer the control of the existing rural

dispensaries for want of funds, to the respective panchayat boards that are willing to take over the management of such dispensaries, and to direct the District Board to keep such dispensaries under its own management, receiving all such contributions offered by the respective panchayat boards.

5. This conference requests the Government, that in case any Panchayat board comes forward with funds for the opening of new rural dispensaries, to advise the District Board to open such dispensary if need be, in that place under its own management receiving all the contributions offered by the respective panchayat board.

6. This conference requests the District board to sympathise with the financial status of the practitioner and give them all, an uniform aid, by giving (1) an extra remuneration of Rs. 240 a year to a practitioner (2) a ward boy on a salary of Rs. 10 per month (3) an allowance of Rs. 5 per month towards house rent (4) and to provide each dispensary with a midwife, at least II class one.

7. This conference resolves that a deputation of the Rural Medical practitioners of this district, do wait on the President, District Board, Guntur with a memorial requesting him to make the necessary favourable recommendations to the board, to give effect to our request in clause 6.

8. This conference requests the District Medical Officer to sympathise with us with regards to the availing of leave with previous permission which in practice has proved to be very inconvenient, in view of the time covered for obtaining such permission, and to kindly allow us to avail leave in anticipation of permission.

9. This conference requests the District Medical Officer to kindly consider our existing grievances and make the necessary favourable recommendations to the Government to give effect to our request in clauses Nos. 1, 2, 4, 5.

10. This conference resolves to express its heart felt grief on the death of Dr. M.S. Krishnamurthy Ayyar, our past president for the III and IV conferences of the provincial Rural Medical practitioners of Madras.

**The South Kanara District Medical
Association, Mangalore.**

**(RESOLUTIONS PASSED BY THE
EXECUTIVE COMMITTEE.)**

Read letter from the Sub Assistant Surgeons in L.F. service, regarding the inadequacy of the new scale of pay, as sanctioned in G. O. No. 2403 P. H. dated 15-10-1934 by Government.

Resolved (a) that the Executive Committee of this Association is strongly of opinion, that the scale fixed in the above G.O., is not commensurate with the nature of work turned out by all classes of L.F. medical officers, as they have to do the same work that is being turned out by Government Medical officers. The committee therefore requests Government to reconsider their decision and fix the same scale as for Government Medical Officers.

(b) The Honorary Secretary is authorised to communicate the above resolution to the Government, the press and the District Board.

Indian Medical Association.

AN APPEAL BY THE JOINT SECRETARIES.

DEAR SIRs,

A body like the Indian Medical Association, claiming to represent the independent medical men in India, must justify its representative capacity by the strength of its membership a consideration which was present to the minds of many in the discussion held at the last All-India Medical Conference.

Unfortunately a large proportion of Indian medical men are still to be found outside the Association. It is not that the necessity for such an organization is questioned or not proved time and again, but that their apathy requires to be removed by well-designed effort in organization and propaganda, the need for which in this Association has been felt.

The desire to effect a better organization found a response at the Delhi Conference from the President of the year, Col. Bhola Nauth who has offered to tour India at his own expense in order to create interest in the Association and establish branches in suitable centres where none exists at present and to strengthen branches in other centres. He is anxious to discover the particular reasons and difficulties in the

way of so many medical practitioners joining the Association and to remove them as far as possible.

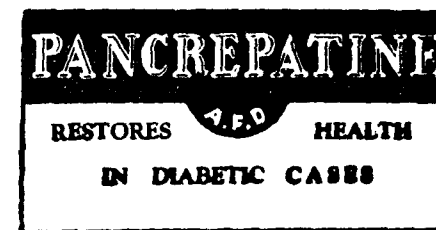
A provisional itinerary includes the following centres:—

U. P., Bihar, Orissa, Bengal, Assam, Cuttack, Berhampore, Vizianagram, Waltair, Coconada, Madras, Trichinopoly, Madura, Travancore, Ootacamund, Bangalore, Mysore, Coimbatore, Dharwar, Belgaum, Poona, Hyderabad, Bombay, Ahmedabad, Baroda, Rajkote, Gondal, Ajmer and Native States.

Col. Bhola Nauth intends starting out in a few weeks.

In the meantime, if Col. Bhola Nauth's tour is to be productive of any large measure of success, it is necessary that the branches or friends of the Association at the various centres he proposes to visit should take steps to give publicity to the fact of his visit and arrange not only public meetings of medical men but also interviews with influential people in the locality. It would also be a kindness if suitable arrangements could be made for Col. Bhola Nauth during his stay at any centre. In order to prepare Col. Bhola Nauth he would appreciate any information you can give him before he sets out on tour as to the special conditions in the locality, the strength of the medical profession there and difficulties experienced in organising branches of this Association or other medical bodies. He would welcome any suggestions you may offer.

We need hardly say that the success of Col. Bhola Nauth's tour will depend on the strength of your co-operation in preparing the ground for him and in informing him on all important points. We write to ask that you will not hesitate to extend this co-operation and we should be glad if you would communicate without delay directly with Col. Bhola Nauth in this matter. His address is 1, Golf Road, Lahore.



The Tinnevely District Medical Association, Palamcottah.

A monthly meeting of the Tinnevely District Medical Association was held at Nanguneri at 4-30 p. m. on Saturday the 26th January 1935 under the Presidentship of Lieut. Col. T. S. Shastry, I.M.S. District Medical Officer, Tinnevely, the President of the Association. Dr. D. Nallathambi Pillai, Medical Officer, Government Hospital Nanguneri ably assisted by his fellow members of the area organised the meeting. There were 35 members present on the occasion besides local officials and many private gentlemen both from the locality and outside. After tea the guests were entertained with music by the children of the local Circle Inspector of Police.

Later the business proper of the meeting commenced. Interesting cases were demonstrated, differential diagnosis discussed. The epidemic at present prevailing in the town and suburb received the attention of the audience. Many members took lively and active part in reporting their experience in the treatment of Cholera stage by stage. The President supplemented the differential diagnosis and treatment in an instructive manner and emphasised the importance of prophylactic measures including the propaganda work for the education of the mass in general by educated members of the public and members of the Local Boards as well.

With a vote of thanks proposed by Dr. G. S. Narayana Ayyar to the President and members present the meeting terminated. There after dinner and a very interesting variety entertainments brought the happy meeting to a close.

A Hardship.

To

The Editor,

THE MEDICAL PRACTITIONER.

Sir,

Ever since the G.O. No. 1932-P.H dated 9th September 1932, came into existence, empowering the District Medical Officers to disburse the subsidies to the rural medical practitioners, the majority of them are experiencing great inconveniences in cashing their bills.

As the result of the G.O. the subsidised practitioner has to realize his dues under two different heads, (1) The Government subsidy (2) the remuneration from the district board for both of which the practitioner has to prepare elaborate pay bills and submit one to the District Medical Officer and the other to the District Board. Generally the date of the receipt of the bill as passed by the District Medical Officer does not coincide with that passed by the District Board. Therefore the practitioner has to leave his station more than once and on several occasions many times to go to the head quarters station to cash both these bills. This entails lot of trouble and expenditure to the rural medical practitioner and the station where he serves also suffers with regard to medical relief on account of the absence of the practitioner from the station.

I therefore appeal to the authorities concerned to make it possible for the rural medical practitioner to receive both the bills at the office of the District Medical Officer and pay him a fixed travelling allowance for this and other purposes of public interest.

Oomerabad, N.A.

R. GOPALAN, L.M.P.

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No.	Names of Sub-Asst. Surgeons.	From.	To
1	Dr. R. Krishna Iyer	L. F. Dy., Satyamangalam	C/o Principal, M. F. C. Coimbatore
2	" K. Govindankutti Nayar	R. M. D. Hd. Qrs. Hl.	Ardodhayam festival duty in Tanjore Dt.
3	" T. Gnanayya	Do.	Do.
4	" M. V. Srinivasan	L. F. Dy., Merkanam	Do.
5	" M. Viraswami Naidu	L. F. Dy., Gingee	Do.
6	" K. P. Chidambaram	L. F. Dy., Marungapuri.	Do.
7	" S. Raghavalu Naidu	" Sendurai	Do.
8	" A. M. Arulanandam Pillai	Govt. Hd. Qrs Hl., Madura	Do.
9	" S. Vaidyanathan	" Salem	Do.
10	" P. V. Anantanarayana Iyer	L. F. Dy., Edappadi,	Do.
11	" P. Balasundaram	Govt. Hd. Qrs. Hl., Chingleput	Ardodhayam festival duty in Chingleput Dt.
12	" N. Krishnaswami Iyer	Govt. Hd. Qrs. Hl., Conjeevaram	Do.
13	" B. Yerram Raju.	L. F. Dy., Duggarajapatnam	C/o D. M. O. Agency duty East Godavari.
14	" G. Suryanarayana	C/o D. M. O. Agency duty East Godavari.	L. F. Dy., Chagalamarri
15	" J. T. Moses	L. F. Dy., Kayattar	Govt. Hd. Qrs. Hl., Palamcottah.
16	" N. A. Abraham	Agency duty	L. F. Dy., Thirthala.
17	" V. Sivasambu	Govt. Hd. Qrs. Hl. Palamcottah	C/o D. M. O. Ganjam. Agency duty.
18	" V. N. Narayana Iyer	Cholera duty, Negapatam	Govt. Hl., Kumbakonam.
19	" Miss. R. Samuel	Govt. Hl., Srivilliputtur	Lady Pentland Hl. Kanadukathan.
20	" A. Parasayya Naidu	Govt. Hl., Udayagiri	Govt. Hl., Kavali.
21	" P. Jogiah Naidu	Govt. Hl. Kavali	L. F. Dy., Allagadda.
22	" I. Vasudeva Rao	L. F. Dy. Allagadda	Govt. Dy. Koilkuntla.
23	" G. Ramamurthi	Govt. Dy. Koilkuntla	Govt. Hl., Udayagiri
24	" S. Sengaliappan	Madras Forst College camp duty	L. F. Dy., Bungalowpudur.
25	" K. S. Ganesan	Ardodhayam duty Tanjore	R. M. D. Hd. Qrs. Hl. Tanjore.
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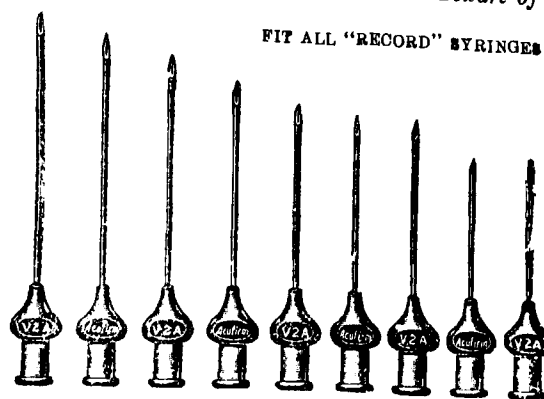
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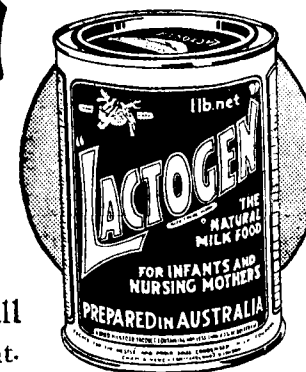
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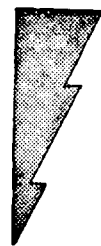
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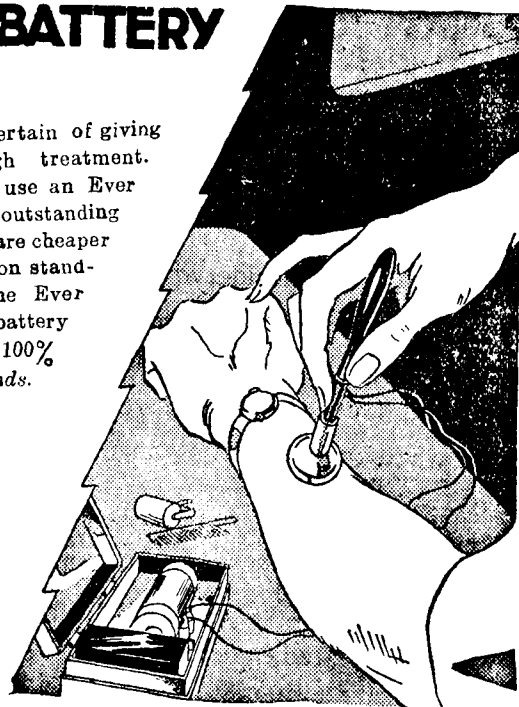
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WHOOPIING COUGH

Whooping cough in an epidemic form is now prevailing in some parts of India. Herebelow we quote again the opinion of an eminent practising physician regarding the treatment of whooping cough with Koo-Koomin. Members of the medical profession will be well advised to keep a stock of Koo-Koomin a tried and safe remedy.

"Whooping Cough is an ancient disease. It may occur at any age, but the greatest susceptibility is during the first half of the first decade of life. There are no definite statistical data on the morbidity of pertussis and the exact number of cases is not known."

The number of deaths directly due to Whooping Cough must be certainly a large one in India though correct statistics is not available or even if available cannot be depended upon as the vital statistics is still in a primitive condition in India.

"The organism causing Whooping Cough is thought to be the Bordet-Gengou bacillus. Other organisms, visible and invisible, are under suspicion as the real cause of the disease. The chief anatomic pathology in pertussis is a catarrhal inflammation of the upper respiratory tract, with a destruction of the ciliated epithelium, in which the pertussis organism is found in large numbers. Complications are not uncommon, Broncho-pneumonia, Bronchitis, Emphysema, Atelectasis and Tracheobronchial lymphadenitis are frequent complications. Vomiting is quite common, leading to malnutrition. The heart is occasionally enlarged, due to the severe strain of coughing. Injury to the brain by the toxemia of vascular congestion leads to convulsions or other cerebral disorders. Tuberculosis as a sequel to Whooping Cough is not uncommon".

In most cases, the diagnosis is very simple. In mild or atypical cases, the diagnosis is sometimes difficult. A history of exposure to pertussis, a persistent spasmodic cough which is worse at night, in an otherwise healthy child, is diagnostic of Whooping Cough.

TREATMENT

The treatment of whooping cough has undergone revolutionary changes. In the Middle Ages, and even in later times, it was treated with all kinds of absurd and irrational folk-remedies. At the present time, a large number of drugs are being used, with little or no benefit. Vaccines, ether and x-ray treatments have also been used, often with discouraging results."

About two years ago I came across the literature of the treatment of whooping cough by KOO-KOONIN manufactured by the Oriental Research Laboratory, Vepery, Madras. I had at that time a number of whooping cough cases under my care and having not had satisfactory results by all known remedies pharmacopœial or patent, I thought of giving a trial to Koo-Koomin. Its ingredients seem to be rationally indicated for the pathological conditions. As referred to above, the catarrhal inflammation of the upper respiratory tract and the destruction of the ciliated epithelium, in which the pertussis organism is found in large numbers, set up spasmodic cough due to tenacious mucus sticking on to the bronchial tubes and which could not be easily expectorated by the child on account of the destruction of the ciliated epithelium. Sodium Benzoate, Ammonium Chloride, Ammonium Carb and the alkaloid of Ashoka and a few Ayurvedic drugs of demulcent properties, which make up the ingredients of Koo-Koomin, liquify the tenacious mucus and facilitate expectoration. Another ingredient Belladonna helps in relieving Bronchial spasm. Hexamine yet another ingredient acts as a germicide in killing the organisms responsible for the disease.

I have used Koo-Koomin in about 50 cases of whooping cough. The results were most encouraging. After two or three days of treatment, the attacks were shorter and milder and the children slept better. In two or three weeks time the cough gradually ceased without serious complications or sequelæ. Apart from whooping cough I have since been using Koo-Koomin for all coughs in children especially attendant with spasms and difficult expectoration and invariably I had very good results.

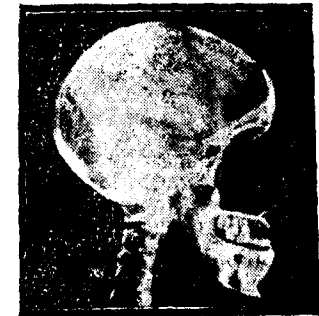


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ZAMA

Sure remedy for all skin diseases, such as Eczema, Itch and many others accompanied by itching, watering and formation of pus.

Eczema and the allied skin diseases are generally the result of indigestion in children; in females the causes are generally menstrual disorders and pregnancy; in males gout, diabetes and diseases of kidney and liver, while sedentary habits, unhygienic surroundings; anæmia, debility, and scrofula are among the internal constitutional causes in all phases of life.

TREATMENT.

The persistent external application of Zama, as described below coupled with suitable internal treatment for the constitutional causes mentioned above is the ideal treatment to be adopted. Bowels should be free having recourse to occasional doses of castor oil in hot sarasaparilla decoction once or twice a week. Habitual use of purgatives is condemned. Constipation is to be cured by the use of proper food. Salty preserved food, such as fish and pork, greasy food, such as bacon and fried dishes, pastry and cheese should be avoided. Food difficult of digestion be struck off the bill of fare. If debility, anæmia be present, take cod-liver oil or Iron tonics; for indigestion take pepsin in combination with hydrochloric acid. Kidney and liver diseases should be treated if present.

CAUTION.

In acute cases of Eczema or itch and allied skin troubles use of soap in any form is harmful. The part is to be cleaned in the early acute stage with thick gruel prepared of finely powdered rice, arrowroot, or any such starchy material. Later on with this may be added a little soap and at any stage soap alone should not be used.

DIRECTIONS TO USE ZAMA.

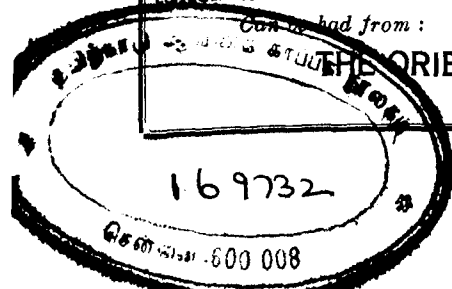
Wash the part once a day in the manner described above and after drying the parts with a soft towel, apply a thin coating of Zama. There will be marked improvement after 3 or 4 days' use. If you find the part a little irritated after use, especially in infants with tender skin, dilute Zama before applying with half or equal quantity of Coconut oil or Vaseline. When healing takes place there will be a sensation of itching when you should not scratch the parts with your nails but should take a little Zama and rub on gently.

SAFETY ASSURED.

Zama may be used quite safely in any part of the skin including that on the head and private parts at all ages from infancy to infirmity. It is not poisonous if a baby licks it accidentally; but care should be taken that children do not swallow the Zama in large quantities.

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ECZEMA: (Irritation of)	Cryogenine.
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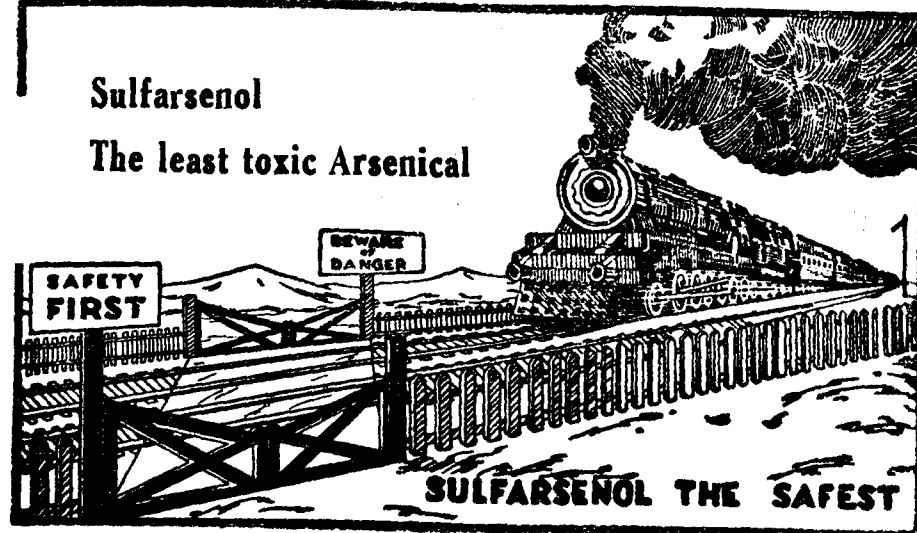
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