

Medical Practitioner:

A monthly Medical Journal.

Vol. 7, No. 1, April, 1935.

The Medical Practitioner

A Monthly Medical Journal

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

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THE Medical Practitioner

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VOL. VI.]

APRIL 1935.

[NO. 7

Original Articles

*SPRUE.

BY

MAJOR G. R. McROBERT, M.D.
M. R. C. P., I. M. S.,
Professor of Medicine, Madras Medical
College, and Physician, Government
General Hospital, Madras.

In selecting a subject for my contribution to the 1935 series of Madras University Extension Lectures in Medicine, I decided upon sprue because it is one of the tropical diseases in the accurate diagnosis and satisfactory management of which considerable advances have recently been made and because most of the modern work has been recorded in research journals which are not much read by the busy Indian general practitioner for whom these lectures are primarily intended.

Since I announced the subject however Dr. Hamilton Fairley of the Hospital for Tropical Diseases in London (and late of Bombay) has published in popular form in the British Medical Journal of December 29, 1934, his comprehensive paper on sprue which was read at the annual conference of the British Medical Association at Bournemouth last year, and I advise anyone seeking further information to consult that paper and also Dr. Fairley's original contributions in the Journal of the Royal Society of Tropical Medicine and Hygiene (2 & 3) of which I have made free use in the preparation of this lecture.

Most of Dr. Fairley's work on sprue breaks entirely new ground and to one point in particular I will draw attention at once.

Working in London on a small series of fatal cases of sprue examined immediately after death, Fairley and Mackie failed to find on microscopic examination, the specific "withering of the villi" and other inflammatory and degenerative changes in the mucous membrane of the gastro-intestinal tract generally alleged to be characteristic of the disease.

Like other workers in the tropics Fairley and Mackie had found such changes in sprue autopsies in India and their recent experiences with post mortem material obtained immediately after death in a cold climate clearly shows the difficulty with which the research worker in gastro-intestinal pathology is faced in the tropics as it is generally some hours after death before he can obtain his material for fixation.

Sprue has been recognised as a clinical entity for over 150 years. It was originally described in Barbados by Hillary as "diarrhoea alba" or the white flux.

From time to time doubt has been cast on the existence of sprue as a separate disease as it is of slow development and every gradation of symptom can be noted between the commencement of the initial diarrhoea and the appearance of the characteristic and never to be forgotten clinical picture of fully developed sprue, but the constancy of

* Madras University extension lecture.

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the laboratory findings justifies the majority of clinicians in regarding it as a definite disease.

Even if it eventually turns out to be a condition of exhaustion and dysfunction of the gastro-intestinal tract—particularly of the stomach and small intestine—caused by weakening of these organs by unsuitable foods and by pathogenic organisms toxins of various kinds, it will still have as much right to be regarded as a distinct disease as, for example, myxoedema in which we have exhaustion and dysfunction of the thyroid gland probably brought about by more than one cause.

In its fully developed form, sprue is characterised by the passage of bulky, frothy, white stools, chiefly in the early morning, by soreness of the tongue, flatulent dyspepsia, much wasting, muscular weakness and by anaemia of the megalocytic type.

The skin often shows pigmented patches and discolouration especially on the forehead and cheeks.

Pyrexia is absent, a subnormal temperature being the rule, and the involvement of the spinal cord sometimes found in the true megalocytic anaemia of Addison does not occur.

Cramps and tetany have been noted by a number of observers and oedema of the feet may be found as indeed it may in all profound disorders of nutrition.

The disease however is not always found in this typical form and in places where sprue is known to occur, recurrent apyrexial diarrhoea should always be treated with suspicion.

Sometimes it happens that a case shows symptoms mainly of a gastric type suggesting a diagnosis of carcinoma of the stomach; or a suspicion of pernicious anaemia may on occasion be aroused, but the evening intestinal flatulence and morning diarrhoea are generally in evidence, though perhaps not prominently so, even in mild cases.

I shall not weary you with a recitation of the theories concerning the origin of sprue, for these, as Fairley says, are almost as numerous as the mathematical possibilities will allow. Those who state that sprue

dysentery, bacillary or amoebic, it is necessary to point out that "no one has yet suggested why a dysenteric process essentially involving the large bowel should be followed by a disease which principally affects the small intestine".

The more recently discarded theories were concerned with vitamin deficiencies, para-thyroid deficiency and specific infection with a yeast.

Although we are without accurate knowledge of the specific cause of sprue, recent clinical, pathological and biochemical studies have thrown much light on the essential mechanism concerned in the production of the sprue syndrome and have helped to evolve a rational and satisfactory therapeutics which bids fair to wipe sprue off the list of fatal diseases.

Originally described in the West Indies sprue has been found widely distributed throughout the tropics. It has been reported from China and Indo-China. It is ripe in Ceylon and is frequently found in Burma. Its occurrence is well-known in the humid coast towns of India, in the southern United States, in Queensland, Australia and in many other places with hot damp debilitating climates.

A very puzzling feature which if properly investigated may help in elucidating the aetiology is the absence of sprue from tropical Africa where all the generally accepted causal factors are apparently present.

Sprue particularly affects Europeans who have lived for some years in an endemic area. It is also frequently met with in persons of mixed descent and is quite common amongst Anglo-Indians. Sir Leonard Rogers states that whilst Europeans suffer most, the indigenous races of India are not exempt. He calls attention to the prevalence of sprue amongst persons whose work involves irregular meal hours, particularly railway guards, and I can confirm this from my own experience.

The occurrence of sprue amongst members of the indigenous population of the well-known endemic areas is however a matter of some doubt.

Cases have been reported in natives of Porto Rico in the West Indies.

At the Bournemouth meeting of the British Medical Association, speakers from Ceylon stated that sprue was prevalent amongst the native population there.

I feel however that a number of clinicians tend to use the word sprue as a label for chronic diarrhoea and obstinate dysentery and a reference to case records of Madras General Hospital does not afford evidence that the characteristic changes in blood picture and biochemistry have been used to any extent to confirm the diagnosis in the case of Indians.

By applying the methods used by Fairley in London, however, we should soon be able to determine whether sprue does or does not attack the native of India.

The view is put forward by Fairley that "sprue arises as a functional breakdown in the gastro-intestine and that any factor or factors depressing its secretory or absorptive function will predispose to it".

In tropical medicine particularly, "non-gastric affections such as malaria may depress gastric secretion, whilst residence in a humid climate involves an increased distribution of blood to the skin at the expense of the splanchnic vessels—a state of affairs which if unduly prolonged, appears likely to depress alimentary function".

Our present knowledge of the physiology of the gastro-intestinal tract is deplorably deficient especially in so far as it relates to the mode of secretion of the various juices and the degree of acid and alkaline reaction of its contents at different levels.

The acidity of the stomach contents due to the secretion of HCL plays an important part we believe in killing noxious micro-organisms such as cholera vibrio.

We are however not fully aware of what factors produce the decrease in acidity of the stomach contents found in various conditions of disordered gastro-intestinal function.

Our knowledge of the normal reaction of the contents of the small intestine is particularly lacking.

Some years ago in McCarrison's laboratory in Coonoor, I showed that in the albino rat whose diet and alimentary canal arrangements closely resemble those of man, the intestinal contents are acid from the

cardia to just above the ileo-caecal junction.

Does this acidity of the gastro-intestinal canal contents exist to such an extent in man, if so, does partial depression of the normal HCL secretion in the stomach render alkaline (and therefore more liable to attack by noxious bacterial) areas of the intestine which are normally acid.

The key to the causation of sprue may be found when a really scientific investigation is made of hill diarrhoea which is antecedent to it in so many cases.

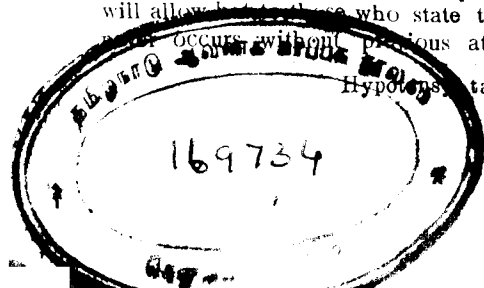
Why is that so many persons develop severe morning diarrhoea in the hills of India; a diarrhoea which is absolutely characteristic, which resists all forms of treatment, which is apparently not primarily due to bacterial infection, and which clears up at once when the patients go down to the plains. No alteration of temperature or of diet can account for the change and the condition is one which is crying out for adequate investigation by biochemists and pathologists.

Until further work reveals the effect of changes in external environment such as moist and damp atmosphere and alterations in altitude on gastro-intestinal function, one must I think accept Fairley's view on regarding sprue as a functional breakdown and note particularly that "a diet rich in fat and carbohydrate and poor in first class protein, which is the main source of the extrinsic factor is the one known to precipitate relapses in sprue and is probably the most potent single factor in the initiation of the disease".

So far as the morbid anatomy is concerned the recent post mortem work in London must, as I have already said, lead to a revision of the description generally given in books, of congestion, haemorrhages, ecchymoses, superficial erosion of epithelium and specific withering of the villi with infiltration with small round cells and degeneration and disappearance of the epithelial covering.

Microscopic examination of the gut reveals no abnormality except entire absence of fat and general wasting on account of lack of nutrition.

The tongue which in the early stages shows patchy areas of inflammation is generally fissured with thinning and atrophy



of the mucous membrane with destruction and disappearance of the fungiform and filiform papillae at post mortem.

In the viscera no change of importance occur except those due to wasting. The pancreas and liver show no specific pathological changes nor do the parathyroids. The heart however is greatly diminished in size, and, as Mackie and Fairley have pointed out, this feature may help in the postmortem differential diagnosis from pernicious anaemia in which disease the heart is generally increased in weight.

The bone marrow shows characteristic megaloblastic change followed by aplasia.

Fairley's laboratory investigations have revealed a very characteristic biochemical picture.

In many cases of sprue achlorhydria exists in the gastric juice but in the majority of these a definite secretory response is found after the injection of 1 mg. histamine hydrochloride—a valuable method of distinguishing the condition from the true achylia of Addisonian anaemia.

The faeces show a very high total fat content (as much as 70% of the dried faeces may be fat) and most of the fat is adequately split fat.

As the haemolytic anaemias give a high indirect van den Bergh reaction and as pernicious anaemia is associated during exacerbation with hyperbilirubinaemia, the van den Bergh reaction should be investigated in all cases when a suspicion of the true pernicious anaemia exists.

The physiological content of bilirubin in normal serum varies from 0.6 to 2 van den Bergh units. In sprue the serum bilirubin content is about 0.74. In pernicious anaemia readings over 1.2 units are the rule.

A glucose tolerance curve with a delayed and low maximal rise, decreased serum calcium with normal serum phosphorus, a blood cholesterol content of under 100 mg. per 100 c.c. are generally found.

The r. b. c. count may be as low as 1,000,000 and in advanced cases the blood picture may be indistinguishable from that of a true pernicious anaemia.

In a series of 90 cases Mackey and Fairley found an average count of 3,000,000 r. b. cs. with a colour index of 1—taking the normal C. I. as 0.9.

The average diameter of the corpuscles by Eve's halometer—8.16 m, clinical improvement being generally accompanied by progressive decrease in the average diameter of the red cells.

There is anisocytosis, poikilocytosis and polychromatophilia. Reticulocytes occur within normal limits.

In well-established cases there is little difficulty in diagnosing sprue but in early cases, especially if not quite typical, a certain amount of doubt may be experienced.

We must beware of using the term sprue as a convenient label for gastro-intestinal affections which do not respond to anti-dysentery treatment.

Tuberculous diarrhoea may be mistaken for it but in this country where tuberculous diarrhoea is caused by the human type of bacillus, there is generally co-existing lung affection.

For a final establishment of the diagnosis, certain laboratory tests are essential—these include the ordinary blood film, r. b. c. count and PH estimation.

Examination of the stomach contents will exclude carcinoma and the presence of large amounts of split fat in the faeces excludes pancreatic disease.

In S. India where gastro-enterostomy is so frequently performed, we must be on the look out for gastroduodenal fistula which very closely resembles sprue in its clinical features.

The number of alleged causes of sprue is equalled by the multiplicity of alleged cures. Vaccines made from monilia and other fungi, santolin which has become yellow by prolonged exposure to the sun, cuttle fish eyes ground to fine powder and parathyroid extract have all had their day.

The fruit treatment was much used in Java and strawberries have had a considerable vogue.

Canties raw red meat was successful in many cases and closely approximated to the modern high protein therapy.

Milk as however formed the basis of most sprue treatments.

It was difficult to find a common factor in all these forms of therapeutics and when himself attacked by sprue in Bombay Fairley started to work out a diet based on

the known deficiencies of the secretions of the intestine and of its defective absorptive powers.

He knew that starch was adequately dealt with by the salivary and pancreatic amylolytic ferments but that there was defective splitting of the disaccharides which instead of dividing into monosaccharides by hydrolysis under the influence of succus entericus, underwent acid fermentation with resulting abdominal distention, intestinal flatulence and gaseous stools—which are essentially related to the carbohydrate and especially the disaccharide moiety of the diet.

There was therefore every indication to cut down starch and cane sugar.

Analysis of the faeces had shown that although fat could be adequately split the fatty acid were not absorbed in any quantity.

Milk, which contains large quantities of fat and considerable amounts of disaccharide therefore seemed to be quite unsuitable as a basis of rational dietary in a disease in which fat absorption and disaccharide splitting are defective.

Fairley was therefore driven to the conclusion that he must depend chiefly on protein for his diet. We now know that in addition to containing the essentials required for body building, protein is intimately associated with the extrinsic factor of castle so essential in the treatment of the megaloblastic anaemia.

He therefore based his treatment on the following principles:—

(1) The gastro-intestinal tract must be rested as much as possible, all unusable residues and irritating substances being omitted from the diet.

(2) A high protein, low fat, low carbohydrate diet must be given.

(3) Demonstrable deficiencies must be made up, by the administration of irradiated ergosterol, calcium, and hydrochloric acid.

(4) Active treatment of the anaemia must be undertaken.

The details of treatment are as follows:—

In order that the food given may be reduced to a minimum, the patient must remain at absolute rest in bed during the early weeks of the treatment.

Great precautions should be taken to render the patient free from danger of chill, as, on account of the lack of fat in the abdominal walls and mesenteries, the internal organs are poorly insulated.

On admission to hospital, clear out the bowel with castor oil and treat any demonstrable helminthic infections. Carry out as many pathological, haematological and biochemical analyses as the means at your disposal will permit during the first day.

Diarrhoea is to be controlled. Fairley recommends pulv. bataviac Co. but I have found colossal Kaolin to be most effective—combined with small doses of camphoradene if necessary.

Overloading of the stomach is to be avoided especially in the early stages and non-bulky feeds should be given at frequent intervals.

A high protein, low fat, low carbohydrate diet is then administered, the fat chiefly junket and custard and the carbohydrate in monosaccharide form—as glucose, fruit and fruit juice.

Protein is largely supplied in the form of lean beef steak of first quality, prepared by cutting away all skin, fat and gristle, mincing and lightly cooking, in a dry pan for 2—3 minutes without the addition of any grease or water.

Continually stir with a fork till exterior is grey but interior is practically raw.

Rus s-ordinary bread with crusts removed, baked thoroughly in an oven.

Fairley has devised five graded diets with a calorific value progressing from 770 to over 3000 (2).

The commencing diet consists of three ounces of underdone beef at 8 a. m., noon and 6 p. m. with 3/4 oz. rusk and a little soup, and a total of 4 oz. of glucose in the day. Orange juice (or papaya), liver extract and calcium are also given. The amount of food given is gradually increased chiefly by increasing the amount of underdone beef and taking care to limit the carbohydrate and fat. Full particulars of these diets may be found in the reference already given.

During convalescence a more liberal dietary is allowed including certain vegetables like cauliflower, celery, marrow, tomatoes and fruits but where carbohydrate

Hypotensyl tablets contain a special hypopiesic principle of the liver.

intolerance has been marked, rice, potatoes and milk puddings should be introduced very gradually.

The rapidity with which diets are changed with such a regime is determined by the general condition of the patient, the disappearance of abdominal distention and intestinal flatulence and the character of the stools which decrease in size and number and become brownish in colour.

It takes on an average 3 weeks to work up to a diet of 3000 calories. The diet must suffice for a steady increase of weight without a return of intestinal flatulence.

It is more important to get rid of the flatulence than to secure rapid increase in weight.

The most satisfactory result of adequate treatment is a disappearance of the profound asthenia commonly met with. Patients whose disease becomes quiescent but not cured on account of inadequate treatment do not lose this asthenia. We may take it therefore that an increased sense of well-being and of fitness to do things on the part of the patient is a very good sign.

If however the weight does not increase after a time, insulin may be given twice daily with an increased ration of glucose.

Careful daily inspection of the stools by the physician is necessary.

In order to combat the anaemia, liver should be administered in some form.

My own experience leads me to advise intramuscular injection of one of the products of a firm of repute. But all liver preparations are liable to become ineffective at times and if the response is inadequate try another preparation checking the results by blood counts, halometer readings and Hb estimating. In favourable cases we expect a prompt reticulocyte response better seen when the anaemia was severe to begin with, a steady rise in the reds and a diminution in the average diameter of the corpuscles. Liver extract by mouth will however in many cases suffice to produce the required effect.

Liver soup: I would especially warn you against the employment of liver soup as a hæmopoietic stimulant. The prolonged cooking to which it is subjected renders it valueless as a source of the intrinsic factor and its calorific content is negligible.

Hypotensyl tablets contain a special hypopiesic principle of the spleen.

If HCL is deficient in the fractional test-meal, give $\frac{1}{2}$ to 1 dram of acid Hydrochlor dil. in a wineglassful of water t. d. s. Irradiated ergosterol and calcium should also be given daily.

If constipation should develop during the course of treatment, liquid paraffin should be employed—not purgatives, nor irritating suppositories.

Although the treatment just outlined is the best at present in existence, it presents obvious disadvantages.

Meat protein is by no means always obtainable in a satisfactory condition in hot climates and on ship board and many have religious objections to taking it.

At Dr. Fairley's instance however, Messrs. Cow and Gate have put on the market a modified milk powder called Sprulac with a protein: fat: carbohydrate content of 1.0: 0.3: 1.3. Whilst the dramatic improvement obtained with the meat diet is not seen in so many cases, the sprulac treatment is the one which I would recommend to you in practice.

Five diets have been worked out to suit all stages of the illness; of course liver, vitamin D and calcium have to be administered as in the case of the meat regime. Dr. Fairley's Sprulac course of diets is appended (3).

No fool can be treated for diabetic mellitus—The same holds good in the treatment of sprue. The doctor must have the willing and intelligent co-operation of the patient in carrying out this long, detailed and rather expensive treatment.

Even after the patient has been apparently cured, he must take no liberties with himself so far as the table is concerned—a vitamin rich, fat poor diet should be maintained. The evening meal should be very light. Vegetables must be well boiled, not fried. Meat should be underdone. Rice and other starchy foods should be taken in great moderation. All obvious meat fat should be cut off.

It is necessary to avoid overdone and twice cooked meat and articles fried or cooked in fat.

Condiments like pepper, mustard, chillies, sauces, chutneys, curries and spiced food, fatty fish, oils, raisins and pastries must be cut, out oversmoking must be avoided.

A monthly blood examination should be carried out and vigorous measures taken in the event of a diminution in reds or an increase in their diameter.

Practically all authorities recommend the invaliding of the patient to Europe from where it is said he should never return.

I have known several sprue patients who have been put on a boat for a four weeks journey to Europe immediately after diagnosis of sprue. They arrived in cold, chilly and foggy London without having had any treatment on the way home.

I have on various occasions both at home and in the East protested against this absurdity as the response to treatment here is just as prompt as it is in England, and there is no danger of cold and fog which exert such an adverse influence on sprue patients.

It has been shown that sprue patients are particularly liable to relapse after attacks of bronchitis, influenzal colds and other respiratory affections.

Do not therefore be in a hurry to shift your responsibilities by advocating a change of climate. If however the case occurs in the hills, it is preferable to have the disease treated on the plains.

With Anglo-Indians and Indians it is in most cases impossible to procure a change of climate but as I have already said it is not necessary with the modern treatment.

Diet No. 1. (Calorie value—697)

1 oz. of sprulac made up to 8 oz. with water every 2½ hours for six feeds (7-30 a. m. to 7-30 p. m.)

Protein: fat: carbohydrate—1.0: 0.3: 1.3.

Diet No. 2 (Calorie value—1,117)

1½ oz. of sprulac made up to 12 oz. with water every 2½ hours for six feeds (7-30 a. m. to 7-30 p. m.) The juice of one orange; jelly (1 oz.)

Protein: fat: carbohydrate—1.0: 0.3: 1.4.

Diet No. 3. (Calorie value—1,530)

2 oz. of sprulac made up with 16 oz. of water are given every 2½ hours for six feeds (7-30 a. m. to 7-30 p. m.). The juice of 2 oranges; jelly (2 oz.).

Protein: fat: carbohydrate—1.0: 0.3: 1.5.

Diet No. 4. (Calorie value—2,001).

Sprulac—ditto diet No. 3.
Juice of two oranges; jelly (3 oz.); two baked apples; custard (2 oz.); underdone beef = 4 oz.; $\frac{1}{2}$ rusk ($\frac{3}{4}$ oz.)

Protein: fat: carbohydrate—1.0: 0.3: 1.5.

Diet No. 5. (Calorie value—2,516)

Sprulac—ditto diet No. 3.
Juice of two oranges; jelly (3 oz.); two baked apples; custard (2 oz.); two rusks (5 oz.) underdone meat (10 oz.).

Protein: fat: carbohydrate—1.0: 0.3: 1.4.

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THE ACTION OF ANTERIOR PITUITARY EXTRACT AND ITS EFFECT ON BLOOD SUGAR.

By

K. VENKATACHALAM,

and

A. N. RATNAGIRISWARAN.

(From the Medical College, Madras.)

The study of the anterior lobe of the pituitary and its secretion has come into great prominence in recent years, especially after the discovery of the presence in the gland, at certain periods, of a hormone stimulating to activity the follicles of immature ovaries. The work so far done has been confined chiefly to this sex-stimulating factor. The object of the present investigation was to study the general effects produced by the administration of the extract containing the growth-promoting hormone.

All the experiments were done with cats weighing, on an average, about 2 kilos. The animals were anaesthetized by injecting a quantity of urethane equivalent to 1.9 g. per kilo body-weight of the animals. They were given their last feed about four hours previous to the administration of the anaesthetic and the experiments were conducted after a total starvation period of 24 hours.

The extract of the anterior lobe of the pituitary used was prepared according to the method of van Dyke and Lawrence (1930) and 1 c.c. of the extract corresponded to 0.5 g. of the desiccated gland. The extracts were given intravenously through the femoral veins of the animals. The possibility that the experimental results obtained might have been due to the presence of breakdown products of tissues was eliminated by means of controls with other tissue extracts.

Effect on blood-pressure and respiration.—Very small doses of the extract of anterior pituitary, e.g., 0.125 c.c., raised the blood-pressure to a slight extent and produced a small decrease in the amplitude of respiration at the end of the expiratory phase. With 0.5 c.c. of the extract, there was a fall of blood-pressure following an initial rise and a subsequent recovery. The amplitude of respiration decreased as with the smaller dose. One c.c. of the extract produced the same effect on blood-pressure as 0.5 c.c., but the respiration in this case was slower than before and its amplitude was diminished both during the expiratory and the inspiratory phases. Respiration almost stopped with 2.5 c.c. of the extract and recovery was very slow. After recovery, subsequent doses up to a total quantity of 13 c.c. to 15 c.c. were tolerated by the animal, provided the injections were given slowly and gradually allowing sufficient time to elapse between one injection and the next. But when 1 c.c. of the extract was given all at once as a single dose, the blood-pressure dropped down nearly to the zero level and there was cessation of respiration though the heart was still beating. A few minutes after, the blood-pressure and respiration improved and further doses of the extract given slowly and gradually produced a persistent rise of blood-pressure. When the animals had more than 13 c.c. to 15 c.c. of the extract, they were seized by convulsions and died on account of respiratory failure. There was no respiratory embarrassment when the extract was given after bilateral vagisection or after atropine.

The spleen volume corresponded to the variations in blood-pressure. The intestinal volume was similarly affected. The movements of the plain muscles appeared to be inhibited to a slight extent.

Effect on blood sugar.—The animals were starved as before for 24 hours before the commencement of the experiments. Estimations of blood sugar were done by the micro method of Folin modified by Herbert and Bourne (1931). Blood was taken from the left carotid artery, the right artery having been used for recording the blood-pressure. After blood had been taken for estimation of the normal value, a quantity of extract of anterior pituitary equivalent to 0.5 c.c.

per kilo body-weight of the cat was run slowly from a burette into the femoral vein. The time taken to run in 15 c.c. in this way was about 45 minutes. Great care had to be exercised in regard both to the correct dose and rate of flow of the extract from the burette, as an overdose or a faster rate of flow was found to result in the death of the animals due to convulsions and respiratory failure. The sample of blood was taken for analysis of sugar from the left carotid artery after all the extract had been allowed to flow in. The results given below are representative of a series of experiments done on a total number of 39 cats:—

The value of blood sugar was found to have risen to nearly twice the normal figure after the administration of anterior pituitary extract.

Number.	Blood sugar before anterior pituitary in mg. per 100 c.c. of blood.	Blood sugar after anterior pituitary in mg. per 100 c.c. of blood.	Percentage of rise.
3770-1...	121.2	222.2	83.3
3922-26.	85.0	165.0	94.0

Section of the vagi before administration of the extract was found to enhance the rise of blood sugar.

Number.	Blood sugar before vagal section in mg. per 100 c.c. of blood.	Blood sugar after vagal section in mg. per 100 c.c. of blood.	Percentage of rise.
3788-90...	44.0	190.0	331.8
4011-15...	70.0	215.0	207.1

To determine to what extent vagal section alone could have been responsible for the increase of blood sugar, estimations were done of the blood sugar cats with the vagi cut, but without being given the extract of anterior pituitary. The results showed that there was a remarkable rise and, in some cases, the values obtained were actually greater than with the anterior pituitary alone.

Hypotensyl tablets reduce Systolic Blood Pressure.

Number.	Blood sugar before vagal section in mg. per 100 c.c. of blood.	Blood sugar after vagal section in mg. per 100 c.c. of blood.	Percentage of rise.
225-8 ...	80.0	222.0	177.5
4121-5 ...	32.0	210.0	462.7

The increase in the blood sugar produced by the administration of anterior pituitary extract alone was not apparent when it was mixed with an equal quantity of gonadal extract of the same strength, i.e., 1 c.c. corresponding to 0.5 g. of the desiccated gland. The gonadal extracts used in these experiments were prepared by the methods described by Allan *et al.* (1928) and Dodds *et al.* (1930).

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after administration of the mixture of anterior pituitary and gonadal extracts in mg. per 100 c.c. of blood.
3875-6 ...	111.0	166.0
3905-7 ...	185.0	174.0

The amount of the mixture given was calculated to contain the same quantity of anterior pituitary extract as when determining its effect on the blood sugar. The sex of the experimental animal should be borne in mind in choosing the gonad as any mistake in this respect would result in a rise of blood sugar, as was the case when a mixture of orchitic and anterior pituitary extracts raised the blood sugar from 0.085 to 0.263 per cent in a female cat.

Extract of the sex gland alone was found to effect an unmistakable lowering of the blood sugar that had been raised above normal by the prior administration of anterior pituitary extract.

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after administration of anterior pituitary extract in mg. per 100 c.c. of blood.	Blood sugar after later administration of gonadal extract in mg. per 100 c.c. of blood.
3943-5 ...	64.0	200.0	139.0

It was also observed that administration of gonadal extract alone reduced the blood sugar below normal.

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after gonadal extract in mg. per 100 c.c. of blood.
368-9 ...	105.2	37.89

This fall was not noticed when the vagi were cut or after atropinization. In these cases, instead of the blood sugar diminishing there was, on the contrary, an actual rise as will be seen from the following results:—

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after vagal section and administration of gonadal extract in mg. per 100 c.c. of blood.
162-3 ...	78.0	125.0

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after atropinization and administration of gonadal extract in mg. per 100 c.c. of blood.
337-8 ...	90.0	125.0

As the administration of gonadal extracts was always accompanied by convulsions and outflow of urine, blood for sugar estimation was taken long after the convulsions had ceased, to exclude possible errors on this account. If this precaution were not observed, the effect of the gonadal extract in lowering the blood sugar might easily be overlooked altogether. Further, the animals to be used for these experiments should be neither pregnant nor lactating ones, as results obtained with these were found to be invariably uncertain and unreliable.

Since hypoglycæmia has been known to be associated with deficiency of adrenaline (Rabinovitch and Barden, 1932), to test whether the hypoglycæmia so produced would counteract the rise of blood sugar due to administration of anterior pituitary extract, the supra-renal veins were ligatured

before giving the extract and blood analysed for sugar-content as before. As will be seen from the results cited below, instead of the expected fall there was, on the other hand, a tendency towards a rise of blood sugar.

Number.	Normal blood sugar in mg. per 100 c.c. of blood.	Blood sugar after ligaturing the supra-renal veins and administration of anterior pituitary extract in mg. per 100 c.c. of blood.
247-8 ...	90.0	111.0
312-3 ...	143.0	163.0

The absence of hypoglycaemia even after ligaturing the supra-renal veins is, therefore clear evidence that the anterior pituitary has a marked hyperglycaemic effect independent of the secretion of adrenaline.

In order to find out the effects of the extracts of the anterior pituitary and the gonads on the vagal centre, the latter was tested for its response to electrical stimulation before and after the administration of the extracts. In the case of the anterior pituitary extract it was observed that the central end of the sectioned vagus required a greater strength of current to produce the same effect on blood-pressure and respiration. On the contrary, gonadal extracts increased the sensitiveness of the vagal centre to electrical stimulation.

DISCUSSION.

The correlation of the disturbances in the blood sugar values with variations in the functional activity of the anterior lobe of the pituitary is clearly seen in the clinical conditions involving the gland, such as gigantism, acromegaly, Simmonds' disease, etc. The influence of the anterior pituitary gland on blood sugar has been shown by Houssay and Biasotti (1931) who found that depancreatized toads ceased to show diabetes after removal of the anterior lobe of the hypophysis but that diabetes reappeared on transplanting the lobe or by injecting its extract. Results of a similar nature have been recorded by Houssay, Biasotti and Kietti (1932) who were able to induce symptoms of diabetes by intraperitoneal injections of anterior pituitary lobe extracts in normal rats and

dogs. The results now obtained by us by means of experiments on cats also show definitely that intravenous injections of the extract of the growth-promoting factor of the anterior pituitary produce marked hyperglycaemia. The observations of previous workers (Lepine, 1931; Emmanuel, 1931) that the actions of the anterior pituitary and gonads were antagonistic in certain respects led us to determine the effects of the gonadal extracts on blood sugar and the results obtained showed that injections of the extracts in anaesthetized cats were accompanied by a lowering of the blood sugar below the normal.

The suggestion that the effects of the anterior lobe of the pituitary on blood sugar might be due to its influence on the supra-renal glands seems to us untenable in view of our findings after ligaturing the supra-renal veins. That the effects of the extracts of the anterior lobe of the pituitary and the gonad were due more to their actions on the vagal centre seemed possible in the light of the values obtained for blood sugar after section of the vagi or atropinization. The idea that the hyperglycaemic effect of the anterior pituitary extract is due to its depressant action on the vagal centre and that the opposite effect produced by the Gonadal extract on the blood sugar is the result of the stimulation of the vagal centre has found support in the experimental results relating to the excitability of the vagal centre to electrical stimulation.

In further trying to determine the mode of action of the anterior pituitary on the vagal centre, we have been able to obtain indications to show that the depression of the vagal centre is brought about through intermediation of the thyroid gland. The work is being continued and the details will be published separately.

SUMMARY.

1. Injections of anterior pituitary extract into cats in single doses of 1 c.c., corresponding to 0.5 g. of the desiccated gland, reduce the blood-pressure almost to zero and produce respiratory failure. If the quantity is given slowly and gradually, there is an initial fall of blood-pressure followed by a marked and persistent rise and the animals can survive doses up to 15 c.c. If this amount is exceeded, the

animals die of convulsions and respiratory failure.

2. The extract increases the blood sugar to nearly twice the normal value and this rise is enhanced by vagisection or atropinization.

3. Vagisection or atropinization also produces in cats a rise of blood sugar.

4. Gonadal extracts reduce the blood sugar and counteract the rise due to administration of anterior pituitary extract; this effect is not observed after vagisection or atropinization.

5. The vagal centre is made more sensitive to electrical stimulation by the administration of gonadal extract, whereas anterior pituitary extract has the opposite effect and it is less sensitive to electrical stimulus.

6. The hyperglycaemic effect of anterior pituitary extract has been shown to be the result of its depressant action on the vagal centre.

7. The mode of action of the anterior pituitary lobe on the vagal centre is under investigation and results obtained so far indicate that the depressant action of the lobe may be due to the stimulation of the thyroid gland.

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THE CLINICAL EXAMINATION AND DIAGNOSIS OF HEAD INJURIES.

By

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With the enormous increase of fast, modern vehicular traffic and industrial machinery head injuries are becoming more frequent than in the past. There is no true statement than the old saying "No injury of the head is so trivial as to be despised or so serious as to be despaired of." The prognosis is therefore exceedingly variable; the mortality rate is still very large, and any endeavour to lower this, is certainly well worthy of consideration. Though no patent medicine, surgical procedure or magical cure has yet been discovered to alter our prognostic forecasts, our facilities for correct and early diagnosis have improved; our concept of the derangements of the circulatory mechanism of the brain and of the Cerebro Spinal fluid changed, and our knowledge of cerebral localisation has increased. Our routine investigation of head injuries, now, therefore includes in it all the modern advances in diagnostic aids.

The head injury patient is often brought in an unconscious state to the Hospital or the Surgeon from the site of accident and frequently no clear history is available as to the exact nature of the accident, and the details regarding the mechanism of the violence sustained; sometimes the patient has been picked up in the road lying unconscious. While a clear history of traumatic details may be of immense help, one has often to do without it. It is the careful observation of the patient, and the evaluation of the symptoms and physical signs observed, that will help the clinician in arriving at a diagnosis, assessing the prognosis, suggesting the procedure to be adopted for further observation and investigation and indicating the treatment. The careful and intelligent interpretation of all available clinical data, should lead one to gauge more or less accurately the nature and extent of the underlying pathological lesion and the probable subsequent march of events resulting therefrom; a clear conception of this, is needless to say essential for correct and appropriate treatment.

Hypotensyl tablets reduce Diastolic Hypertension.

ROUTINE INVESTIGATION.

1. Note whether the patient is conscious, dazed, apathetic, drowsy, irritable, delirious, or deeply unconscious; if conscious question him regarding the accident, to ascertain its nature and mechanism, his mental state, and any complaint of headache, giddiness, vomiting, noises in the ear, dimness of vision and inability to use any limb or limbs; if unconscious, try and get a history from persons who brought him in and who may have been at the accident.
2. Observe any evidence of gross external hæmorrhage, or wounds in the scalp—hæmatoma, lacerations, incised wounds, stabs, ecchymosis, oedema, compound fractures etc.
3. Note his facial expression—flushed, pale or cyanotic; the presence of any dilated tortuous vessels in the face or neck or any visible pulsation.
4. Note any smell about the patient—the peculiar odour of alcohol, the pleasant fruity smell of acetone or the fishy stink of uræmia, or any other smell characteristic of any drugs.
5. Feel the skin—cold, clammy or sweating or warm and dry.
6. Take his temperature under the tongue (if possible), in the axilla and in the rectum if necessary; feel his pulse, note its rate, volume, tension and rhythm; observe the respiration—deep or shallow, heavy or stertorous, its rate rhythm (normal, cheyne stokes, etc.)
7. Note the general attitude, whether he lies with all limbs relaxed, curled up or rigid.
8. Inspect the nostrils, ears and mouth for any bleeding or discharge of cerebro-spinal fluid or brain matter from them.
9. Inspect the conjunctiva for any hæmorrhage, and the eye lids for any oedema; see the state of the pupils, whether equal or unequal, normal, compact or dilated and movements whether sluggish or active.
10. Note if there are any abnormal involuntary movements—generalized or localised convulsions, athetosis, twitches or tremors.
11. See the cardiac impulse and look out for any oedema of the legs.
12. Note the gait if able to walk, and speech whether impaired or not.
13. Palpate the skull systematically for any swellings, depression, indentation, crack etc. If there is an open wound, feel its margins for any thickening, raised edges and probe the floor for evidence of any fracture; if a swelling is present, note its shape, size, consistency, any pulsation, if it could be indented with the fingers, if any crackling is felt and if on deep pressure, the bone underneath could be felt, and if so trace it to the surrounding bone to note if there is any break in its continuity or not.
14. Examine the limbs for any evidence of paresis or paralysis; spasticity or flaccidity, loss of power etc.
15. Observe whether there is any secretory disturbance: hyperæsthesia, anaesthesia.
16. Examine the reflexes, superficial and deep—normal, exaggerated, diminished or lost.
17. Investigate the condition of the Sphincters:—incontinence, retention; overflow; see if the bladder is full or empty.
18. Do a lumbar puncture and note if the tap is clear, bloody, or negative; its pressure—normal, increased or diminished; examine the fluid for cell count and test for globulin.
19. Estimate the blood pressure—systolic, diastolic and pulse pressure.
20. Examine blood smear for oligæmia; do a blood count if indicated.
21. Take skiagrams of the skull; antero-posterior and lateral views; when doubtful stereoscopic views should be obtained. Note any irregularities, asymmetry, thickness of calvarium, grooves for the vessels, fontanelles in children; the condition of the air containing regions—air sinuses; auditory, nasal and orbital cavities; and particularly anterior and posterior clinoid processes, pituitary fossa, and the petrous temporal bone.
22. Examine the urine—Note its colour, odour, quantity if possible, specific gravity, reaction and look out for the presence of any sugar or albumen. Examine for casts if necessary.
23. Examine the Fundus of the Eye with the ophthalmoscope.
24. The cranial nerves should be investigated systematically for any evidence of damage to one or more of them:—
 - I. or Olfactory Nerve; see if the nasal fossa are clear of any obstruction by blood clot, dried discharge or displaced bone or septum and then test the sense of smell with a piece of wool soaked in some pungent aromatic.
 - II. or Optic Nerve: Test vision.
 - III. or Oculo Motor Nerve; damage may

Hypotensyl tablets contain the blood pressure reducing principles of Mistletoe.

be indicated by Ptosis, dilated or fixed pupil and external strabismus.

IV. or Trochlear Nerve: diplopia, internal strabismus when the eye is rotated downwards, thickening, pain or tenderness at the site of the pulley of the superior oblique will indicate a lesion of this nerve.

V. or Trigeminal; rarely affected alone. Internal strabismus alone shows that this nerve is injured.

VI. Internal strabismus alone shows that this nerve is injured.

VII. Facial paralysis of the supranuclear or infranuclear type.

VIII. Deafness—particularly bone deafness, as auditory and meatus and middle ear may be interfered with due to obstruction by blood clots.

IX. Any difficulty in swallowing; loss of taste over back of tongue.

X. Dyspnoea with slow respiration; altered cardiac rhythm; unilateral laryngeal paralysis.

XI. Partial paralysis of the steno mastoid and upper half of the trapezius indicates a lesion of the spinal accessory nerve.

XII. Hypoglossal lesion is indicated by deviation of the protruded tongue towards the injured side and later wasting of this side of the tongue.

ANALYSIS OF THE CASE.

One has now to evaluate the symptoms and clinical data obtained and decide (1) whether the case is one of head injury or of the other simulating states, (2) a simple scalp injury, (3) skull fracture without any intracranial damage, (4) intracranial damage with or without skull fracture, (5) whether any infective or other complications are present.

Before we proceed to distinguish head injury from other conditions which may simulate it, it may be instructive to classify the symptoms and signs of head injuries, under, positive, probable and presumptive signs.

POSITIVE SIGNS: 1. The detection of a fracture by direct inspection, palpation, probing or by X-Ray examinations. 2. Escape of Cerebro-spinal fluid or brain matter from the ear, nose or mouth.

PROBABLE SIGNS: 1. Bleeding from the ear, nose or mouth, 2. Blood in the cerebro-spinal fluid obtained by lumbar puncture.

PRESUMPTIVE SIGNS: 1. History of trauma to head, 2. Unconsciousness, 3. Paralysis

of the cranial nerves, Monoplegia, Hemiplegia or Paraplegia, 4. Convulsions, 5. Alteration of reflexes, 6. Incontinence of urine or retention, 7. Eye Signs, 8. Glycosuria, 9. Scalp laceration or hæmatoma or Ecchymosis of the eyelids, 10. Traumatic delirium.

A consideration of the above will give an idea as to the probability or certainty of the presence of head injury. The following conditions may simulate head injury and have to be carefully excluded: 1. Alcoholism, 2. Apoplexy, 3. Diabetic coma, 4. Drug poisoning, 5. Uræmia. 6. Cerebral Neoplasm, etc.

Alcoholism: The history of trauma in a drunken man may be misleading. In the absence of any positive or probable signs a definite diagnosis cannot be arrived at immediately; the patient has to be kept under observation for a few hours for the effects of alcohol to pass off. The signs of alcoholism are: 1. Peculiar odour of breath, 2. flushed face, 3. heavy but not stertorous breathing, 4. pupils contracted but dilating on rousing the patient, 5. incoherent delirium, 6. tendency to become quarrelsome, 7. tremor, 8. unsteadiness of gait if able to walk at all, 9. absence of paralysis, 10. finding the bladder full.

Apoplexy: As the symptoms of cerebral hæmorrhage are the same whether due to disease or trauma, the history of trauma is very valuable; but one should carefully elucidate whether trauma preceded the symptoms, or whether the trauma was sustained after a brief period of unconsciousness or other symptoms. The following points will be helpful in differentiating apoplexy from the effects of head injuries: 1. age of the patient, 2. condition of the heart, blood vessels and urine, 3. the absence of any scalp wound or hæmatoma or bone depression, 4. the absence of bleeding from ear, nose or mouth, 5. the great disproportion between the loss of consciousness and paralysis if present, 6. the greater preponderance of motor over sensory disturbances eg., complete hemiplegia with transient insensibility, 7. the rapid onset of coma, 8. the absence of marked stage of excitation, 9. the very early onset of extensive paralytic symptoms.

Diabetic coma can be differentiated from Head injury by the following points: 1. the presence of sugar in the urine, 2. the odour of acetone in the patient's breath, 3. the

deep coma without paralysis, 4. Flushed face 5. Rapid deep respirations. It should be remembered however that glycosuria is equally common in some head injuries, but only transient.

Drug poisoning, uræmia and cerebral neoplasia can be easily excluded by a careful examination of the patient.

Having excluded other conditions and diagnosed head injury, the exact nature of the lesion, its extent and localisation, have to be determined :—

Simple Scalp injury: The absence of unconsciousness or drowsiness, vertigo, giddiness, violent headache, normal pulse, respiration and temperature, absence of paresis or paralysis, convulsions, twitchings, tremors, absence of sensory disturbances, absence of pupillary changes, presence of normal reflexes, absence of sphincter disturbances and absence of bleeding or discharge of cerebro spinal fluid from ear, nose or mouth, indicate that probably there is no intracranial damage; in any event a patient with a scalp wound should be kept under observation for at least 24 hours; an apparently trivial scalp wound may be followed later by symptoms of intracranial involvement and hæmorrhage etc.

1. Blunt violence to the scalp may produce a wound simulating an incised wound; careful observation of the ends for tapering at one end, and feeling the edges for contusion, will help to distinguish one from the other.

2. A hæmatoma of the scalp has to be distinguished from a traumatic meningocoele; in a hæmatoma there is (a) discolouration of the skin (b) fluctuation is only in part or indistinct, (c) the edge of the swelling is firm, (d) the swelling is opaque, (e) not altered by crying, coughing, and straining.

3. A hæmatoma in the scalp itself should be differentiated from one under the epicranial aponeurosis. The former is (a) firm, (b) more or less flat, (c) moves with the scalp over the underlying bone; whereas the latter is soft and easily moveable over the bone and under the scalp.

4. A Sub-aponeurotic hæmatoma may be diffuse or circumscribed; if diffuse it is mobile from the occiput to the forehead; when circumscribed, it is soft, fluctuant, and crackling and not mobile over the skull.

5. A sub-pericranial hæmatoma is diagnosed by its being (a) fixed to the bones,

(b) corresponding to the outline of one of the cranial bones.

6. A hæmatoma may be mistaken for a depressed fracture as the margin of the swelling is firm due to clotting of blood while the centre is soft; but (a) the firm edge is compressible, (b) firm pressure with the finger will reveal the continuity of bone from the periphery to the centre, (c) the edge is raised above the bone beyond it; whereas in a depressed fracture, (a) the edge is not compressible, (b) loss of continuity of bone is noticed on firm pressure, (c) the edge is not raised, while the centre is felt depressed. The X-Rays will confirm the diagnosis.

7. If the swelling pulsated, does not increase on crying or coughing and if compression of the main vessels causes the pulsation to be lost, it is a pulsating hæmatoma.

SKULL FRACTURE WITHOUT BRAIN INJURY.

The absence of brain injury can be inferred from (a) the absence of unconsciousness, drowsiness, delirium, (b) the absence of paresis or paralysis, convulsions, twitching or tremors (c) the absence of bleeding or discharge, cerebro spinal fluid or brain matter from the ear nose or mouth (d) the absence of interference with cranial nerves (e) the absence of interference with the sphincters (f) the presence of normal reflexes, while in all fractures of the base of the skull, evidences of brain injury are present invariably. Localised fractures of the vault of the skull may exist without any intracranial damage. Localised fractures rarely occur without a scalp wound so that careful exploration of the scalp wound will reveal a fracture underlying, rarely in children. Single depressed fracture of the skull may occur. Single fractures are often the result of severe and localised violence:

(1) A normal suture may be mistaken for a fissured fracture; it is diagnosed by its position, the irregularity of its margins and the absence of blood between the edges.

(2) A clean cut in the periosteum may be mistaken for a fissure, raising the edge of the periosteum from the bone with the gloved finger will reveal the true condition.

(3) A punctured fracture may be missed as it passes obliquely through the scalp before it traverses the skull and leaves a valvular wound or a foreign body may be left in the gap making it difficult to detect

the fracture with a probe or even with the finger. When in doubt enlarge the scalp wound sufficiently and examine.

(4) Depressed fracture is easily spotted when compound; but a simple one may be mistaken for a hæmatoma (vide supra).

All cases of skull fracture should be kept under careful observation for, symptoms of intracranial involvement may appear late from hæmorrhage or in future complications.

INTRACRANIAL DAMAGE WITH OR WITHOUT SKULL FRACTURE.

The symptoms are attributable to hæmorrhage and generalised increased intracranial pressure or pressure on localized areas of the brain; the clinical manifestations may point to cerebral concussion, irritation or compression, though they may frequently overlap or merge with one another; they may be stated in a tabulatory form as given below.

CONCUSSION.		IRRITATION	COMPRESSION
1 Onset	Sudden; immediately after injury	Usually follows a state of concussion	Some hours after injury; headache and drowsiness passing into unconsciousness.
2 Duration	From a few moments to 24 hours	1 to 2 weeks	
3 Conscious,	semi conscious, rousable but relapsing to lethargy	Conscious	First conscious; gradually developing headache and drowsiness and ultimately deep coma; or unconsciousness of concussion continues.
4 Facies	Pale	Flushed	Flushed, veins distended, moist and warm
5 Temperature	Subnormal	Slightly raised	First temperature falls; then steadily rises to 100-103°. Difference in temperature between the two sides—affected more.
6 Pulse	Weak and slow; may be regular or irregular	Full	Early—slow, full and bounding; later rapid, weak and irregular.
7 Respiration	Slow, shallow and sighing	Shallow	Early—regular, deep and slow; later, irregular stertorous and cheyne-stokes.
8 Skin	Cold, clammy and sweating	Cold	Warm.
9 Pupils	Dilated and equal. React sluggish to light	Contracted and eye lids closed, conj: reflex is present	Unequal; or both widely dilated; no reaction to light.
10 Musculature	Relaxed, no paralysis		Paralysis first localised to group of muscles on one side of body; general paralysis (stertor & puffing out of cheeks during expiration).
11 Reflexes	Lost; gradual recovery		Both superficial and deep lost.
12 Mental state	dull & lethargic	Irritable and violent	
13 Sphincters—Incontinence		Competent usually	Retention and overflow.
14 Termination	Reaction vomiting or epileptiform convulsions, gradual recovery,	Very slow & gradual recovery; but mental changes and loss of memory	

Increased intracranial pressure whether due to hæmorrhage of inflammatory exudate or traumatic oedema may cause either irritation or paralysis of the brain substance

and produce symptoms referable to the involvement of motor, sensory or reflex centres; the symptoms may be tabulated as follows:—

	IRRITATIVE.	PARALYTIC.
Motor	Convulsions, twitching	Position of the limbs, absence of motion and power in limbs; stertorous breathing and flapping of the cheeks and lips during expiration.
Sensory	Pain, Hyperaesthesia	Insensibility to external stimuli, light, sound, touch, pinch, prick, heat and cold.
Reflex	Increased excitability	Fixed pupils, loss of conjunctival reflex.

DIAGNOSIS OF THE SITE OF THE LESION:—

(a) Paralysis or irritation of a single nerve or number of nerves lying close together indicates a localised lesion on the same side. (b) Symptoms referable to a number of nerves whose cortical centres lie close together point to a cortical lesion on the opposite side. (c) An extensive distribution of paralysis suggests a lesion of some part of the brain where nerve fibres connecting the cortical centres to the lower centres or areas of distribution travel close together as for example—hæmorrhage into the internal capsule.

DIAGNOSIS OF THE NATURE OF THE LESION:—(a) irritative symptoms indicate slight compression, superficial laceration of brain substance or inflammatory congestion. (b) Paralysis indicate firm compression by blood clot inflammatory exudate, depressed bone or foreign body.

It should be remembered that irritative symptoms are first present and later symptoms of paralysis supervene; often while certain areas show symptoms of paralysis, the surrounding areas show signs of irritation only; but this zone of irritation with a central one of paralysis is progres-

sive. Symptoms coming on immediately following an injury are usually due to concussion or compression by depressed bone. When they appear after a short time measurable in hours, pressure of effused blood or serum is the probable cause; symptoms coming on later are probably the result of inflammation or cicatrization.

DIAGNOSIS OF INTRACRANIAL HÆMORRHAGE:—

Hæmorrhage inside the skull is detected by the presence of symptoms referable to a pressure on the brain and in general the pressure is localized to a limited area however extensive the hæmorrhage may be. It will be therefore possible to classify the symptoms with reference to the particular areas affected; certain symptoms however do not point to any particular part of the brain.

Nonlocalizing symptoms: are (1) headache, (2) giddiness, (3) vomiting, (4) generalized convulsions.

Localizing symptoms:—May refer to pressure on (1) the hemispheres (2) mid-brain (3) the bulb, and may be either irritative or paralytic.

	IRRITATIVE	PARALYTIC.
HEMISPHERICAL:		
1 Consciousness:	Irritability, delirium, slow cerebration and drowsiness	Coma
2 Motor cortex and pyramidal tract	Rigidity of muscles; Jacksonian fits	Hemiparesis, Hemiplegia Exaggerated reflexes; Babinski loss of abdominal reflex.
3 Broca's area		Aphasia
4 Occipital lobes		Hemianopia.
MID BRAIN:		
1 Oculo-motor nucleus	Contracted and sluggish pupil	Dilated & fixed pupil.
BULBAR:		
1 Respiratory centre	Deep, slow breathing	Shallow, gasping, irregular breathing.
2 Cardiac centre	Slow and full pulse	Rapid, small weak pulse.
3 Vaso-motor centre	Rising Blood-pressure	Falling Blood. Pressure.
4 Glycosuria	Usually transient	

SIGNIFICANCE OF PUPILLARY SIGNS:—

(1) If one pupil is contracted and sluggish while the other is normal, an irritative lesion on the same side is present, (2) if one pupil is slightly dilated and fixed, while the other is contracted and fixed a paralytic stage on the side of the lesion and irritation on the opposite side are present (3) If both pupils are dilated and fixed while one is larger than the other, it indicates paralytic stage on both sides the more dilated pupil being on the side of lesion.

DIAGNOSIS OF INTRACRANIAL HÆMORRHAGE:—

A. Indirect evidence:—(1) nature of force applied—sharp localised blows, falls on the head, high velocity bullets etc., (2) direction of the force, (3) general severity of the accident, (4) presence of fracture of skull.

B. Direct evidence:—(1) nature of lesion: external evidence of intracranial hæmorrhage (2) blood in cerebro-spinal fluid (3) signs of cerebral involvement:—Mode of onset, progress and nature of symptoms; presence of paralysis.

DIAGNOSIS OF SIDE OF LESION:—Paralysed side:—(1) Flaccidity of limbs, (2) failure to respond to painful stimuli, (3) drooping of mouth, (4) puffing out of cheek during expiration, (5) elevation of temperature, (6) abolition or diminution of abdominal reflexes, (7) exaggeration of deep reflexes, and presence of ankle clonus and Babinski sign.

DIFFERENTIATION OF EXTRA-DURAL FROM SUB-DURAL HÆMORRHAGE:—In extra dural hæmorrhage it is usual to find (1) oedematous thickening of the temporal with no local evidence of external injury due to blood escaping through the fracture, (2) well-marked concussion with a well-marked lucid interval of $\frac{1}{2}$ to 24 hours, (3) the great frequency of evidence of fracture (4) hemiplegic, pupillary and bulbar signs—are gradual in evolution:—In other hæmorrhages, there is no lucid interval, evidence of fracture is uncommon, mental symptoms are well-marked, paralysis pupillary and bulbar signs appear more rapidly.

FRACTURE OF THE BASE OF THE SKULL.

A. Anterior fossa:—Result from a blow on the forehead, nose or face; punctured wound of the orbit or nasal cavity. Signs: Bleeding from the pharynx or nose, leakage of cerebro-spinal fluid recognizable only if persistent and copious, by the consciousness of a persistent saline taste in the mouth, escape of brain matter through nose or mouth, extravasation of blood into orbit-proptosis and sub-conjunctival ecchymosis; blood appears from behind forward, is fan-shaped and later spreads to eyelid, subcutaneous emphysema of scalp if frontal sinus is opened.

B. Middle fossa: Result of severe violence to vault; fall from a height. Signs: Escape of dark blood in a steady stream from the ear, escape of cerebrospinal fluid

from the ear, occasionally emphysema of scalp from implication of mastoid, involvement of 2nd and 3rd divisions of the V, VIII and VII cranial nerves; deafness.

C. Posterior fossa: Result of severe violence to vault as above; or when the patient falls on the feet or buttock—immediately unconscious, signs of injury to the hind brain and skull.

PRESENCE OF INFECTIVE COMPLICATIONS.

(1) After a head injury, symptoms of fever with rigor, vomiting, rapid full pulse, passing within a few hours to a condition of great restlessness, excitement or delirium and then paralysis, with rapidly increasing

drowsiness passing on to coma; indicate lepto-meningitis.

(2) Persistent local pain and tenderness after an injury indicates pachymeningitis; a puffy swelling over the injured part of the scalp with signs of local compression over the cortex indicates extra-dural abscess.

(3) Persistent local pain, slow cerebration, increasing drowsiness, opticneuritis subnormal temperature and vomiting, indicate cerebral abscess.

(4) After head injury, fever, interrupted at irregular intervals by rigors, suggests infection thrombosis of one or more of the intracranial sinuses.

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CLINICAL NOTES

AND

PRACTICAL SUGGESTIONS.

Diseases of the larynx and their treatment.

It is not proposed to deal here with all the diseases of the larynx but only those that require the attention of the general practitioner. While excluding therefore diphtheric, croupous, tuberculous and syphilitic laryngitis, laryngeal lupus and tumours, which call for treatment based on the special cause of the involvement we will simply dwell on acute and chronic catarrhal laryngitis, which the general practitioner is frequently called upon to treat and which very often occurs when change from one season to the other takes place.

Acute catarrhal laryngitis is usually the result of exposure to cold air or of sudden changes from a dry and warm place to a cold and wet one. It may be due to inhalation of irritative vapours or dusty atmosphere, to over use of the voice or to the spread of inflammatory processes from the surrounding parts such as nose, pharynx, trachea and bronchi. Many people are subject to these attacks when they are affected by bronchial or nasal catarrh. Various acute infectious diseases such as influenza, small-pox and measles are accompanied by laryngitis.

In this affection there is in the beginning a sense of pain and dryness in the throat and burning sensation or soreness. These symptoms increase on swallowing. The voice becomes low, rasping and at times aphorous. Spasmodic, persistent cough is sometimes complained of and this is accompanied by dense muco-purulent expectoration which later becomes liquid and more plentiful. Respiration is not involved in most of the cases, but in children dyspnoea and wheezing are frequently met with. The general symptoms complained of are sluggishness, constipation, headache and fever. In severe cases it takes about a week to recover but in milder ones recovery takes place in a few days.

In acute catarrhal laryngitis there is deep hyperæmia of the laryngeal mucous membrane which swells and ulcerates especially in the vocal cords and the inter arytenoid

space. As a result there is partial or total closure of the rima glottidis.

When acute catarrhal laryngitis is not properly treated or when it is due to recurring irritation, it often becomes chronic. This latter variety is often found in persons using high tones of voice for a long while and under strain as in hawkers, teachers and orators. Sometimes the chronic variety is due to excessive use of alcohol and tobacco. In this variety, the symptoms complained of are hoarseness accompanied by dryness and irritation of the throat. There is at times laryngeal vellication and complete loss of voice. Although cough is frequent there is only mild expectoration of viscid mucus. In the majority of cases dyspnoea is rarely complained of and there is complete absence of any constitutional symptoms. Pathologically we find mucus congestion of varying intensity with viscid sores here and there in the laryngeal mucous membrane. In serious and protracted cases there is granulation of mucous and submucous tissues which swell and harden with superficial ulceration. The mobility of the vocal cords is affected more or less.

Having thoroughly understood the symptomatology and the anatomic lesions of acute and chronic laryngitis we can see how very necessary it is to have recourse to both local and constitutional treatment. To reduce hyperæmia, to relieve the congestion of the mucous membrane, to soothe the burning sensation and to promote diffusion of secretions, will constitute the most effective line of local treatment. For this purpose the best form of topical application is the spraying of Bacte-Rhino-Phage with any good atomiser. If the contents of one ampoule are sprayed two to three times daily deep above the larynx, it will help to clear the condition within a very short period of time. The Phage by acting specifically on the various bacilli that cause the condition, will not only relieve the hyperæmia and congestion of the mucous membrane, but will accelerate the diffusion of secretions and thus assist the reparative process. Cough will be relieved and the local condition will soon be clear. It is one of the best forms of local treatment as it is effective, easy and clean of application. Troubles of fomentations and poultices are eliminated. Through its marked bactericidal properties, Bacte-Rhino-Phage constitutes an

effective therapy for this affection, whether acute or chronic. It promotes active vasomotor dilatation and accelerates the blood and lymph circulation by inducing dilatation of the superficial capillaries. Thus the deep-seated tissues which are the seat of inflammatory process, are soon relieved and restored to their normal condition. Thus the pain is lessened and swelling and congestion of the laryngeal tissues is reduced. If Bacte-Rhinc-Phage is applied at the commencement of the attack it helps very much to shorten the attack and to ease much suffering and pain. In some cases it even aborts the attacks.

In addition to this topical therapy Orargol either "Injectable" or "Non-Injectable" should be exhibited. Mostly one or two injections are sufficient in acute cases but more may be required in chronic ones. The pronounced effect of this treatment is the reduction of temperature, disappearance of sluggishness, relief of cephalalgia and constipation. Being a combination of the colloidal suspensions of both gold and silver, Orargol acts like, and in some cases, even better than specific therapeutic serums. If given at the onset of the disease, Orargol promptly aborts it very quickly while if applied a little later the course of the disease is considerably shortened. No contra indications exist for the use of Orargol which must needs be exhibited as early as possible. Many physicians have obtained gratifying results with this combined treatment in laryngitis, acute as well as chronic, the management of which has so far been admittedly unsatisfactory.

Treatment of Gonorrhoea and its complications.

Although Gonorrhoea in itself is not a fatal disease, it sometimes persists obstinately and often leads to permanent sexual damage in the males and sterility in the females. If this disease has led to tissue infection, it becomes highly intractable and then it resists all the usual lines of treatments. The infection generally in such cases is of long duration, though there may be comparative freedom from toxic effects. It is therefore highly imperative

that the treatment should be commenced as early as possible.

After the diagnosis has been confirmed by the microscope and the location of the inflammation whether anterior or posterior has been determined, treatment, both local and constitutional should be started at once. The local treatment consists of irrigations with Potassium Permanganate. This is used in strengths of 1 in 5000 to 1 in 1000 according to the severity of the local condition. When the discharge has become less, the gonococci few and disquamated epithelial cells many, the strength of Potassium Permanganate solution may be increased. The microscope will reveal the value of this treatment as can be seen from the diminution of the cocci, scanty discharge etc. At this stage the urethra should be dilated once a week and it should be irrigated by means of Potassium Permanganate solution in the strength of 1 in 1000 twice a day. This should be continued until the urine becomes entirely free from threads or shreds.

Throughout this stage along with local treatment, Mictasol tablets should be administered as they aid very much in the gradual diminution of the discharge. It has been proved that if Mictasol is employed in the initial stage, it is an effective means of treating the gonorrhoeal discharge which is so discomforting to the patient. It has a decided sedative action on the urethral mucous membrane due to Camphor Bromide in it. It owes its antiseptic action to its Formin content while the lessening effect on the secretions is due to the presence of Malva Purpurea in it. Due to these distinct and valuable properties Mictasol is most effective in diminishing the excessive discharge, allaying irritation and congestion of the mucous membrane and in relieving the pain. Furthermore, it acts on the infection by means of its antiseptic and parasitocidal properties. The association of Malva Purpurea, Camphor Bromide and Formin in Mictasol constitutes an entirely new formula which possesses a special therapeutic value in the initial stage of Gonorrhoea. The efficacy of this combination has been confirmed by the clinical experience of numerous physi-

cians and urologists. Mictasol is well tolerated by the digestive tract and it does not cause any pain in the kidneys. No nausea or any other ill-effects are ever experienced with it. Combined with Potassium Permanganate irrigations it is an excellent medication for acute gonorrhoea. This is quite a simple and easy method of treatment. The average dose is 8 tablets per day and this is effective in checking the discharge, relieving the painful micturition and genital erethism and quickly disinfecting the urethral canal.

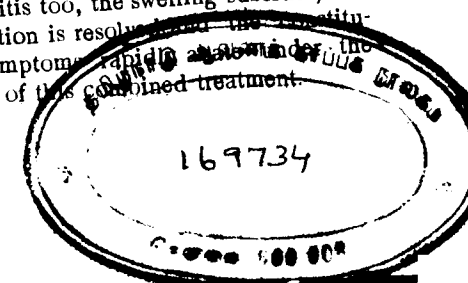
When the acute stage remains untreated or neglected there follows what is known as subacute gonorrhoea. Here there is persistent cloudiness in the second portion of the urine and treatment at this stage becomes one of the most troublesome problems. The seminal vesicles are most often infiltrated and there is possibility of the epididymis and the prostate being affected. It has been found however, that subacute gonorrhoea can be effectively combated by the simple oral administration of Rheantine spherules. This is an anti-gonococcic entero-vaccine to be administered by the oral route. Four to six spherules per day between meals are usually sufficient to bring about excellent results within a week's time. The spherules have a keratin coating which enables them to pass through the stomach unaffected. They become active only in the intestines where they are dissolved by the secretions and are absorbed very rapidly. Unlike the vaccines there is hardly any reaction and its use precludes any possibility of erythema at any stage and also of gastric or intestinal intolerance. Rheantine treatment avoids any kind of interference with the patient's daily work. This treatment not only brings about cure in the majority of cases but also averts complications. The value of this treatment in the gonorrhoeal infection of the male adenexa lies in the fact that no other oral therapeutic agent is able to gain so thorough control over the prostatic recesses, seminal vesiculae etc. which are so often the seat of disease in this subacute or chronic stage. Its effects are mainly antiseptic and anti-bacterial and this can be evidenced by rapid clearing of the urine, definite improvement in the findings in the sediment and disappearance of the subjective symptoms, tenesmus ceases

discharge disappears and the pain is much reduced. In subacute and chronic gonorrhoea refractory to all treatments previously followed, dilatation along with this oral vaccine preparation, Rheantine, will bring about rapid cure, which can be judged by the following criteria:—

1. Disappearance of all discharge and oozing.
2. Disappearance of all filaments in the urine.
3. Disappearance of all subjective symptoms.

When the infection further develops into posterior urethritis and becomes chronic, irrigations of Potassium Permanganate 1 in 1000 strengths are very useful. It should be borne in mind that posterior urethritis is frequently followed by complications which should be as far as possible prevented. If the posterior urethritis is severe it is better to avoid local treatment. Water in large quantities together with the administration of Rheantine spherules is the principal line of treatment. If the condition does not yield to this alone and if it leads to complications such as prostatitis, seminal vesiculitis and epididymitis, the above treatment should be combined with injections of Pharmasol Trimine. In this Pharmasol is combined Iron and Manganese 0.1 per cent each with 0.01 per cent of Zinc, all in active colloidal state. This colloidal complex is highly efficacious in chronic gonorrhoea and its complications. It is a valuable adjuvant to Rheantine treatment in these chronic cases. It influences favourably the various complications. If given in time this Pharmasol prevents that frequent and most troublesome complication viz. Peri-urethral abscess, which usually terminates in a urinary fistula. Even if the latter occurs, injections of Pharmasol Trimine in 1 cc or 1.5 cc doses bring about rapid healing. In Prostatitis together with massage this combined treatment of Rheantine and Trimine is very useful in reducing the temperature, relieving the pain, strangury and tenesmus, the usual symptoms of the infection of the prostate. Similarly in epididymitis too, the swelling subsides, the inflammation is resolved and the constitutional symptoms rapidly disappear under the influence of this combined treatment.

For any information adverted to in the columns of this journal apply to: The Medical Practitioners' Service Bureau, Vepery, Madras, with stamps for reply.



If posterior urethritis remains inadequately or improperly treated there is not infrequently metastatic gonococcal involvement of the joints and the synovial membranes. In these cases of gonorrhoeal arthritis vaccines were formerly used, but with doubtful results. The most effective line of treatment, however, is the administration of Sulfarsenol injections. These injections along with physical therapy such as hot sitz baths, hot air and diathermy accomplish a complete cure in a short time. Doses of 18 to 30 cgms once daily for four or five days are generally resorted to and when arseno solvent is the medicine employed to dissolve Sulfarsenol powder, its subcutaneous or intramuscular injections hardly cause any pain or infiltration. There is rapid relief of pain and the inflammation subsides within a couple of days. Much suffering of these serious complications can be avoided by timely and regular injections of Sulfarsenol.

As regards Gonorrhoea in the female the therapy of the acute symptoms is almost the same as in the male. The urethritis should be treated locally with instillations of Potassium Permanganate in different strengths according to the condition. If there is Cartholinitis, it should be allayed by fomentations and pledgets of gauze soaked in Potassium Permanganate solution should be kept. Abscesses, if they occur, should be opened and dressed with antiseptic gauze. If the infection happens to reach the cervix, it should be dried and touched with 5 to 10 per cent of protargol. Washing out the uterus with any antiseptic solution helps the infection to travel upwards. In case the gonococci reach the uterus they soon get

into the adenexa. If the latter eventuality occurs, Mictasol together with Sulfarsenol injections are indicated. Rectal gonorrhoea is more common in the females than is generally supposed. It is secondary to vaginal or urethral gonorrhoea. Rectal cohabitation is at times responsible for a certain percentage of cases. Due to lack of symptoms in this type its significance is usually underrated. Therapeutic enemata of Potassium Permanganate solutions as well as Rheantine and Mictasol by mouth will clear up the case in a very short time.

Concerning restrictions, all alcoholic liquors and stimulating drinks such as tea, coffee etc should be interdicted. Drinking plenty of plain water helps to clear up the urethra. Less of meat and seasoned food-stuffs and more of milk and cereals is the best diet in gonorrhoea. Physical exertions of all kinds should be avoided. Bowels should be made to act regularly and scrupulous cleanliness must be enjoined.

When we have the remedies such as Mictasol and Rheantine for acute and sub-acute and chronic cases and when we have a simple but valuable preparation as Potassium Permanganate for local irrigation and when we have at our disposal Sulfarsenol the painless injection of which is made possible by means of arseno solvent, for arthritis, there is no reason why Gonorrhoea cannot be successfully dealt with at any stage. Any refractory case can be brought round with the above treatment most effectively and in the shortest possible time coupled of course with dietetic restrictions and cleanliness.

THE Medical Practitioner

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[NO. 7

OURSELVES.

We are extremely sorry that due to our Editor getting suddenly ill we have not been able to edit the journal in the methodical way we have been doing ever since it came to existence. Discussions of topics concerning the life and prosperity of the members of the profession, in the "Editorial and News and Comments" columns which was the chief feature of the usefulness and popularity of the journal has to be curtailed as this item of work could not easily be taken up all at once by anybody else. The illness from which Dr. Kamath has been suffering being Pneumonia, it was not possible for him to take any part in editing the journal. Nor will it be possible for him to do anything in this direction for a couple of months more as he has been advised to take complete rest for this period. During these two months we shall do all that is possible for us, to follow the footsteps of Dr. Kamath temporarily. We have to admit that the task of editing a journal of the type of The Medical Practitioner is really a difficult one. Unlike other medical journals which deal only with scientific subjects, The Medical Practitioner gathers news affecting the life and prosperity of the members of the profession from the various provinces in India and comments upon them to serve the best interests of the profession. We find on the Editor's table newspaper cuttings and other papers furnishing matter from places outside Madras which we are not able to handle all too soon and hope to deal with it next month when we expect to get some help from Dr. Kamath. We have undertaken this task out of love and regard towards Dr. Kamath and not for any monetary consideration. We know and we are sure that no one can contradict us when we say that the

journal has been conducted by Dr. Kamath for love of service which service has been felt by those whom Dr. Kamath has been serving with no other reward except perhaps the sense of appreciation. Though we are diffident to undertake a heavy responsibility for these two months, we have put our shoulder to the wheel with the hope that the readers of The Medical Practitioner, will excuse us for our short-comings, if not for anything else, but out of sympathy towards one who has been working hard all these years and who now needs physical and mental rest after an attack of serious and exhausting illness.

Thank God, Dr. Kamath is progressing satisfactorily under the kind care of Major G. R. Mc Robert and Dr. M. L. Kamath to both of whom Dr. Kamath is highly grateful. Dr. Kamath wishes us to thank his several friends in the medical profession and outside who have been making kind enquiries about his health personally and through letters. And he expresses his regret to such of those who were anxious to see him, but who were not allowed to do so during the acute stage of his illness on the strict advice of his medical attendants and conveys to them his heart-felt gratefulness for their kind concern towards him. We pray Dr. Kamath will have a safe and uneventful convalescence and will soon take up the work which is so dear to his heart.

SUBSIDISED PRACTITIONERS' CONFERENCE.

The practitioners belonging to the Madras Subsidised Rural Medical Relief Scheme met in conference for the fifth time at Bezwada on 20-4-35 under the presidentship of Dr. D. S. Ramachandra Rao, M.A., M.D. We are glad that the venue of the annual gathering of the subsidised practitioners

Quinarsine
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Malaria

which was in the Tamil Nadu consecutively four times was shifted to Andhradesa and we congratulate the subsidised practitioners of Andhradesa on their ability in conducting the proceedings of the conference quite successfully. Dr. N. Rama Rao, Chairman of the Reception Committee, welcomed the visitors and the delegates and in the course of his address narrated the grievances the subsidised practitioners were groaning under. All of them have been incorporated in the resolutions passed at the conference. The President's speech was as brief as it was pithy and his observations and advice are worthy of the consideration, not only of the rural practitioners but of the members of the medical profession as a whole. Though philosophic in outlook, the address was full of practical wisdom dealing with the problems of life of medical men both in rural and in urban areas and their solutions. Contentment and co-operation as against unhealthy rivalry was the key note of advice of Dr. Ramachandra Rao. He exhorted the practitioners however humble they may be that they should not barter their self-respect and individuality for the pittance of the subsidy they are paid. At the close of his speech Dr. Ramachandra Rao made a most sensible and valuable suggestion to his audience. He said that many of the grievances of the members of the independent medical profession will find an easy solution if members of the profession made up their minds to enter legislative councils aiming to take up ministerial responsibilities. So far the cry of the subsidised practitioner has been in the wilderness. Day by day their liberties are curtailed and the Government, instead of coming to their rescue, are deliberately mutilating the purpose of the scheme. The subsidised practitioners are not the servants of the Government much less of the local boards. The very meagre subsidy they receive cannot for a moment be considered an adequate remuneration for the onerous services rendered by them. The amount of subsidy is hardly sufficient to keep their body and soul alive. They are expected to depend upon private practice for their maintenance; yet, the local bodies expect them to pin themselves to their residence at fixed hours both morning and evening not permitting them at these hours to visit paying patients at their residence when the services of the practitioners are urgently

wanted. And the Government instead of increasing the facilities and liberties of private practice of the subsidised practitioners, which is their duty as per the spirit of the scheme, have materially hampered them, having passed an order recently, requiring the practitioners to be at the dispensing at fixed hours morning and evening. Usually villagers have little or no faith in scientific system of medicine and prefer quacks and charlatans to treat them and seek the aid of a qualified doctor at the last stage of illness. This is the psychological moment when the qualified practitioner has an opportunity of winning the confidence of the ignorant and credulous village folk and educate them against the risks of quackery. The prohibitive order of the Government must necessarily prevent the subsidised practitioners from not only attending on patients requiring immediate and skilful medical relief in a village where no other qualified practitioner is available but also encourage quackery as the villagers will be forced to go to another quack. So the order of the Government under reference will actually set at nought the very purpose for which the subsidised rural medical relief scheme is intended. The subsidised practitioners who met at Bezwada have formulated their grievances in 19 resolutions to be submitted to the Government with their pious prayers. Almost all the grievances enumerated in the resolutions have been the subjects which were discussed, criticised and commented upon in these columns, in many instances, with special reference to individual cases. From our past experience we could say that nothing will come out of the prayers to the Government embodied in the several resolutions passed at Bezwada. We agree with Dr. Ramachandra Rao that the only effective remedy to cure the ills of not only rural practitioners but of the whole profession is the capturing of as many seats as possible in the legislative council by medical men "as it is he who wears the shoe knows where it pinches". The idea may look utopian but certainly worthy of consideration. In the meanwhile, we would advise subsidised practitioners to approach peoples' representatives in the Legislative Council and agitate through them.

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CALCINOL

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WHOOPIING COUGH

COMPOSITION

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ACTION

The indications for the treatment of whooping cough is to administer a remedy which contains drugs to kill the germ and which lessen the viscosity of phlegm and make the expectoration easy. The medicine should also have the power to relieve the spasms in the bronchioles and thus relieve the compression on the lungs which prevents the patient to take in fresh air and thus causes suffocation. All these indications are satisfied by the administration of Koo-Koomin whose composition has all necessary ingredients to control and cure the disease.

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Correspondence Reports, Etc. SUBSIDISED RURAL MEDICAL PRACTITIONERS' CONFERENCE.

The Fifth Provincial Conference of the Subsidised (Rural) Medical Practitioners' of the Madras Presidency, was held on 20th April 1935 in the Municipal High School, Bezwada under the Presidency of Dr. D. S. Ramachandra Rao, M.A., M.D. The Conference began at 2 P. M., Dr. N. Rama Rao welcomed the delegates in a neat little speech. This over, the President was formally proposed to the Chair by Dr. S. Ramasubbu. The President took his seat and delivered a lucid and thought provoking address. Thereafter a number of Resolutions were passed. After vote of thanks to the President, the conference came to a close at 6 P.M.

Presidential Address.

BY

DR. D. S. RAMACHANDRA RAO, M.A., M.D.
Gentlemen,

I feel grateful for the honour you have done me by asking me to preside on this occasion. This may be your first visit to Andhradesa, but I trust that it shall not be the last. Bezwada has been blazing hot for some days now and you have come here while the summer has begun in right earnest, but had you come here a couple of months earlier you would have found this old city of ours not particularly unpleasant or unhealthy to live in. In spite of the seasonal discomfort, I trust you will have a good time here and I extend to you Bezwada's warm welcome in fact and in spirit.

We medical men and women have no doubt our share of trouble and disappointments whether we are in service or in independent practice. We wish to be what we are not and cry for the moon which we cannot get. But there is a discontent which savours of the divine and our profession will be none the worse if it gets bitten by its sting. Of course we must realise whether we practise in urban areas or in rural areas, that we have to shoulder responsibilities while we see that we have our due share of privileges. We cannot possibly have the one without the other. The ideal would be where both are equally and harmoniously

co-ordinated. It is natural that you who live away in the remote villages, far away from modern civilisation, expect compensations, real and adequate, for the discomforts of rural practice.

In the Western world, people have begun to be fed up with city life and the cry is back to the country. So you may be congratulating yourselves that you are pioneers of a movement, the importance of which our country is just beginning to see. It is for you gentlemen, to tell both the public and the powers that be, whether you are independent medical practitioners taking jobs, in which the state is interested, for some consideration, or you are really state servants undertaking public service when you have the time for it. I believe that many of your difficulties would disappear when the world sees and realises what you really are. If you are the servants of the state it is for you to see whether it is worth while to accept service under your present conditions. If you are independent medical men and women, then is it worth while to barter with your freedom for the pittance that you get from the state.

But money is not every thing in life, particularly in the profession which you and I have the honour to belong to. No doubt a labourer is worthy of his hire, but not less nor more. The reward of any science is the achievement of the object it has in view—the service of humanity. That opportunity for service you have always with you in the village as in the city. In fact the opportunity is great in the village for as yet you are not too many. The need for scientific medical aid is very great at the present day, and it should be of comfort and joy to you to feel that you are occupying a much needed though neglected spot in the country.

Of course you cannot afford to look after the philosophic aspect of the question till the inner man is sufficiently satisfied. Unless you came from the village it would not be easy for you to adapt yourselves to the ways and habits of the villagers. The latter are in the habit of paying their obligations in kind rather in coin. They may not have as yet taken kindly to the Western system of medicine. It would not be an easy task to humour the rustic in his rustic condition. Still I am sure that with some effort on both sides mutual accommodation

at his dispensary shall be made by the competent authorities, as far as possible during working hours and after previous intimation.

IV. This Conference regards the authorisation by the authorities, of vaccinators and health inspectors, not holding any diploma or degree in medicine etc., to inoculate people against cholera, plague or other epidemics (small pox excluded) and utilization of the services of compounders and inoculators to give injections to cases of leprosy or other diseases, is an encroachment on the rights and privileges of registered and qualified medical men and so requests Government to prohibit such practice and requisition therefore the services of medical men only.

V. This Conference desires to invite the kind attention of the Government to the fact that because of the present economic condition, keen struggle for existence and the increase in the number of qualified medical men in urban areas, many quacks have not only sprung up in, but also migrated to, rural areas, hindering thereby the effective popularisation and spread of skilled medical aid, and adversely affecting the income of subsidised practitioners and so requests the Government to kindly remove such obstacle and enable the practitioners to practise to the advantage of all concerned, by penalysing quackery, and providing through legislation that no individual, whatever system of treatment he may like to practise in, will be allowed to practise in the art of healing unless he has been declared competent to do so by an authorised body of experts skilled in the respective systems.

VI. This Conference respectfully represents that as an effect of G. O. No. 2403 P. H. dated 15th October 1934, the extra subsidy payable to subsidised practitioners from Local Board Funds has in many cases either been greatly curtailed or completely withheld, reiterates resolution 15 of the IV Conference and requests Government therefore, to kindly (1) enhance the practitioners subsidy payable from Provincial Funds, and to (2) reconsider G.O. No. P.H. 139 dated 21st January 1935, relax para 5 of 2403 P.H. in respect of the existing incumbents and permit the District Boards to continue to give their subsidised practitioners with retrospective effect, every extra given prior to 1st November 1934.

VII. (a) This Conference greatly welcomes the policy of the Government to utilise the services of subsidised practitioners for Public Health work in rural areas and suggests that the experiment may be tried, as far as possible in remote villages of a district or villages not easily accessible to or frequented by the District Health Officers.

(b) This Conference submits that the honorarium sanctioned to a subsidised practitioners for such work, is very meagre and requests the Government to kindly enhance it to Rs. 30 a month in addition to contingent charges and necessities.

(c) This Conference is of the opinion that the duties mentioned in the Director of Public Health's Circular D. No. 13 P. H. dated 17th

January 1935, are too many and too heavy and therefore requests that practitioners be not required to do vaccination work and that the other duties be curtailed to the barest minimum and confined to the most important and necessary items so as not to affect the practitioners' professional work.

(d) This conference regards that the presence of a vaccinator in the village of a subsidised practitioner assigned with public health duties, will be of great advantage to the practitioner and the department, and suggests therefore, that one vaccinator may be made to live in the village of such practitioner to work under the guidance of the subsidised practitioner instead of the Health Inspector.

VIII. (a) This Conference expresses its deep sense of gratitude to the Government and the Surgeon General for G. O. No. 625 P. H. dated 19th March 1935 thus complying with the request contained in resolution—A VI of the I Conference and requests them to fix the age limit at 40 and order that (a) the claims of subsidised practitioners will be given preference not only to new candidates with no experience but also to other candidates with experience but with no service connections with the District Board (b) and that in the matter of such recruitment, due regard shall be given to the period of a subsidised practitioner's connection with the District Board.

IX. (a) This Conference brings to the notice of the Government that some subsidised practitioners have not yet been equipped with the most necessary surgical, dental, and midwifery, instruments in spite of G. O. No. 761 P.H., dated 7th April 1935, reiterates resolution VII of the II Conference and requests Government to direct the District Boards to make such supply as one of the conditions of the Agreement, the allotment for such supply and equipment to be separate from that for drugs.

(b) This Conference requests also that every subsidised practitioner shall be allowed every year a sum not exceeding Rs. 40 in addition to the cost of drugs, for the repair or renewal of old and worn out instruments or purchase of new ones.

(c) also, in view of the heavy discount, excise, packing and transit charges, this conference requests that every practitioner should be supplied with drugs to the actual value of Rs. 360 a year and that the other such incidental charges should be borne separately by the District Boards.

(d) This Conference also requests that the requirements of subsidised practitioners with L. I. M. qualifications should be supplied from the most reliable and reputed individuals or stores.

X. As it is the experience of many practitioners that the drugs supplied to them at District Board cost, are not even sufficient to meet the requirements of the ordinary poor that seek relief at the practitioners' residence, and as those practitioners with midwives attached, find it a great handicap to be obliged to supply from such stock the midwives'

requirements for her use outside the dispensary, this Conference earnestly requests Government to direct that all the requirements of the midwife shall be separately budgetted for, and supplied on separate indents by the District Boards.

XI. As some District Boards have held that house rent and contingent allowance to subsidised practitioners are inadmissible under G.O. No. 2403 P.H. dated 15th October 1934 and have withheld the same from 1-11-34, this Conference requests Government to kindly permit the District Boards to pay to the subsidised practitioners such charges as heretofore and with retrospective effect.

XII. This Conference reiterates its unanimous opinion that the present leave conditions are very hard and stringent, and requests Government to allow every subsidised practitioner leave on full subsidy for 25 days in a year, exclusive of public holidays, to be availed at one single time or on a number of occasions according to requirements; that the previous permission of the President, District Board be not insisted upon, that the procedure laid down in G. O. No. 1701 P. H. of 1925 shall generally be observed by the practitioners in regard to such absence, and that any deduction of subsidy shall be made only for days over and above 25 days in the year irrespective of the fact whether such absence was at one single time or on many occasions.

(b) This Conference represents that subsidised practitioners living as they do in villages, have greater need than others for keeping themselves in touch with the latest advancements in Medical science and treatment, and therefore requests Government to allow subsidised practitioners of more than 5 years standstill study leave on a decent subsistence allowance and with lien on their holding.

(c) This Conference requests Government to kindly allow the payment of the provincial subsidy to subsidised practitioners, obliged to be away from their stations for long periods due to reasons of ill-health, as, when confined to bed or otherwise incapacitated to attend to their work, and permit the local boards also to pay such practitioners the subsidy for the period, payable from local board funds.

XIII. This Conference desires to point out that notwithstanding G. O. No. 2753 P. H. dated 6th December 1933, there is a great delay in receiving the bill after pre-audit, and difficulty in realising the subsidy and therefore requests the Government that except in cases where there is a sub-treasury, Government subsidy be drawn by the District Medical Officer from the District Treasury and remitted to the practitioner at Government's cost.

XIV. This Conference requests that in cases of any alleged breach of any of the terms of the Agreement on the part of a practitioner, the President of a District Board shall not depute any member to enquire into the matter.

XV. This Conference submits that Government Memorandum No. 15,815—2—D. 2 P. H. dated 10th May 1934 deprives the Secretary of the Provincial Association of the constitu-

tional right of bringing any case of hardships of the practitioners, to the notice of the Government and therefore requests the Government to kindly rescind it.

XVI. This Conference brings to the notice of the Government that the practice obtaining in some places of renewing every year the Agreement of the same individual, as being against the object and intention of the scheme and therefore requests the Government to direct that the Agreement between a subsidised practitioner and the local board shall be executed once only at the start and need not be renewed anytime thereafter so long the practitioner works in his village abiding by the terms and conditions of the Agreement.

XVII. This Conference learns with surprise that the proposal of the Kistna District Board to terminate, for reasons of financial stringency, the agreement of the subsidised practitioner at Gollapalle especially in view of the Board's resolution last year to have a regular dispensary there, and therefore requests Government to kindly enquire into the matter and render justice.

XVIII. This Conference thanks the authorities for giving effect to some of the resolutions passed at the previous conferences, reiterates the other resolutions and requests the Government and the concerned authorities to kindly comply with the requests contained therein.

XIX. This Conference places on record its deep sense of sorrow at the demise of Drs. M.S. Krishnamoorthi Aiyar, T. Krishna Menon, B. S. Mallayya and A. Hanumantha Rao of Chimalapadu who have helped the Association and its members to a great extent.

An Appeal.

BY DR. S. RAMASUBBU, L. M. S.

Honorary Secretary, The Madras Provincial Subsidised (Rural) Medical Practitioners' Association.

Above will be found the resolutions passed at our V provincial conference. I take this opportunity to sincerely thank one and all for having helped me and contributed to the success of the gathering.

The resolutions will have to be sent to government, ere long with concrete instances. There might be some among us, with material particulars relevant to one or other of the resolutions. I suggest that these be sent to me early as they will, if brought to the notice of the authorities have a cumulative effect in ensuring sympathetic consideration.

I would avail of this occasion to stress on two points. Men, money and munitions they say, are the sinews of war, it is none the less true of any organisation and its

work. As the President of our conference rightly stressed, *co-operation and money* are the things most needed now for our work ahead, I appeal to every one to do his best for the Association on the lines suggested. Times are very favourable for the successful work of district associations of subsidised medical practitioners; almost every district has got a district medical association and we can utilise the days of their meetings to transact our business as well.

It need not be that our district association should necessarily be affiliated to the district medical association, the aims and aspirations of each may differ but the one can certainly help the other to a great extent. I would however suggest that the district association of subsidised practitioners, affiliates itself to the provincial association, so that our experiences may be pooled and uniform remedies suggested.

I fervently look forward to more co-operation and better results.

Madras Medical College Centenary.

It might interest your readers to know that the Madras Medical College has completed, one hundred years of its existence, and will shortly have the proud and rare distinction of celebrating its centenary. It is only a few months younger than its sister institution at Calcutta, which recently celebrated its centenary.

Lt. Col. New-Combes, I. M. S. Chairman of the College Council issued an invitation to all the Old Boys of the institution to meet on Thursday the 21st March 1935, in the College Hall, to discuss ways and means of celebrating the centenary. The meeting was well attended and very cordial feelings prevailed among the Old Boys.

Prominent among those present were. Lt. Cols. Pandalai, and Mahadevan, Drs. Guruswami Mudaliar, Lakshmanswami, Coshan, Miss Lazaru, Ramasamy Naidu, Mangesh Rao, Thambiah, David, Koshy, Sambasivan, C. Natesa Mudaliar, U. Rama Rao and Krishna Rao and many other Old Boys, in the City.

Some of the suggestions put forward for the commemoration of the centenary were, (1) formation of an Old Boys' Association, (2) organising a medical exhibition during

the centenary week, to demonstrate the progress of medicine in all branches (3) to endow a research scholarship (4) to start post graduate courses in all branches and specialities of medicine and surgery.

Another suggestion which has been put forward, and certainly worthy of serious consideration, is the starting of a College of Physicians and Surgeons to conduct fellowship examination, along with post graduate courses already suggested. The time is certainly very opportune, for such a step, as should be evident to those in touch with medical education and one sincerely hopes that all concerned will seriously consider this suggestion.

Lt. Col. Pandalai moved a resolution for the purpose of starting the Old Boy's Association; this was unanimously passed and a committee of 5 members was elected to draft the rules and details for the working of the Association. A Centenary Celebration Committee was also elected from among members of the College Council, to consider the suggestions put forward and any further suggestion that might be forthcoming. Some members present felt that in the Centenary Committee, members of the independent medical profession both from the city and mofussil, should have been duly represented. The meeting then terminated to meet again in July to further consider the matter. It was also decided to appeal to the medical fraternity and public to subscribe liberally to the centenary fund.

M. SANJIVA RAO.

New L. M. P. Course.

PLEA TO RAISE PRELIMINARY EDUCATIONAL QUALIFICATION

A common observer of things would not fail to note with great anxiety the unsatisfactory results of the L.M.P. Board Examinations for the last three years especially under the "Five years course" and the raised standard of examination. A glance over the results would show that failures are more on the way of increase in the Government Lady Wellington and Vellore Medical Schools than in the Stanley Medical School. The reason for this is not far to seek. Though the rules for admission into the medical schools require the minimum preliminary educational qualification of S.S.L.C.

with 40% in English preference is given first to graduates and secondly to intermediates while making selection. The candidates for the Stanley Medical School being only boys and the other two only girls there is usually a large percentage of candidates amongst the boys with higher qualifications than the S.S.L.C. and in the schools for women, the candidates seeking admission are only S.S.L.C. students and it is said that at times the Selection Committee find it very hard to make a good selection from amongst these as many a candidate amongst these girls are said to have not even secured 40% in English in the S.S.L.C. examination. So it is but natural that the general educational qualification for the girls being of a very low standard they are not able to cope up with the subjects taught in the schools and fail miserably in the examinations.

There might be other causes also to account for the poor results in the two women medical schools such as poor equipment of the institutions, inefficiency of the teaching staff not to mention of other causes at work. A higher general educational qualification would have certainly made up for the other deficiencies referred to above to a certain extent. It is therefore highly desirable that the Government should seriously consider about the question of raising the preliminary educational qualification to the Intermediate standard.

Such a step would not only help the students to study medicine with a wider outlook, but also bring about uniform standard of medical education in India to achieve which many of the medical organisations particularly the All-India Medical Licentiates' Association have been working heart and soul for the last several years.

U. L. GOPAL RAU,
Secretary, A.I.M.L. Assn. Madras.

The Tinnevely District Medical Association.

The Tinnevely District Medical Association had its monthly meeting at Tuticorin along with the Anniversary of the Tuticorin Medical Union on the 27th April 1935. Members numbering above fifty including

some lady doctors gathered from all parts of the District and assembled at the C. H. School, Tuticorin, at 2 P. M. The party started to the Hare Island at 3 P. M. for an excursion. Refreshments were served there and all of them returned to the mainland at 6 30 P. M.

The meeting began at 7 P. M. under the presidentship of Lieut. Col. T. S. Shastry, I.M. S. Some of the local officials and visitors including the Commissioner and the Chairman of the Tuticorin Municipality were also present. The Annual Report of the Tuticorin Medical Union was read by the Secretary of the Union and was passed. The Secretary of the Tinnevely District Medical Association read the minutes of the last meeting, which were passed. Then the question of fixing the day of the month for meetings hereafter was discussed in view of the Surgeon-General's suggestion to hold it on Government holidays.

The President moved that the following members be made Honorary members of the Association subject to the unanimous vote at the next meeting: 1. Lieut. Col. T. W. Harley, I. M. S. (Retired D. M. O.) 2. Dr. B. Ramabaliga, B. A., M. B. & C. M. (Retired D. M. O.) 3. Dr. D. Krishnaiya B. A., M. B. & C. M., (Retired D. M. O.)

Interesting clinical cases such as Hemiplegia, Cholera, Hydrocephalus were demonstrated followed by very interesting discussion. Dr. Acharya, M. B. B. S., showed an Asthma patient and read interesting notes on the case. Dr. Srinivasaraghava Iyengar, L.M. & S., and some other members spoke suggesting various lines of treatment during all stages. Alternating with the discussions, members were entertained to splendid music, Indian and European. Dr. Manuel and his family gave music on the Piano accompanied by violin and violincello. Dr. K. Ramachandran of the Local Fund Dispensary, Ettayapuram and Nurse Miss. Phillipz of the Government Hospital, Tuticorin entertained the audience with vocal music. Lieut. Col. T. S. Shastry, I. M. S. brought the meeting to a close by offering remarks on the subjects discussed. He appreciated the elaborate arrangements made by the Tuticorin Medical Union. A vote of thanks was proposed by Dr. Manuel, the Secretary of the Tuticorin Medical Union, who thanked the

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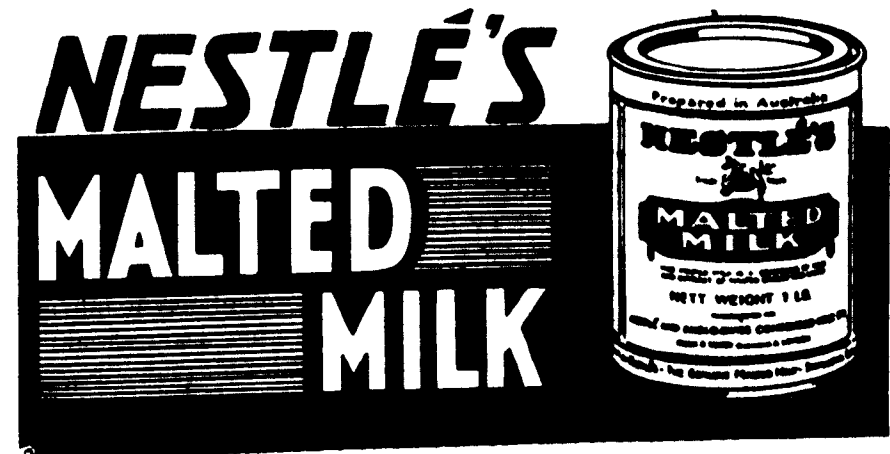
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Head Master of the C. H. School for having placed the school buildings at their disposal and Mr. Fernandez for the trip to the Hare Island. After a sumptuous dinner the gathering dispersed.

Chettinad Medical Association.

The regular monthly meeting of the above association was held at Dr. Shetty's Eye, Ear, Nose and Throat clinic at Kana-dukathan, on 28th under the presidentship of Dr. Ramanathan A. D. M. O. Ramanad. 20 members were present. After tea, Dr. Shetty demonstrated cases of clinical interest from his ward. One was a case of suspected pituitary tumour another hydrocephalus in a child of 9 months, the third was a neglected case of mastoiditis with sinus thrombosis.

An interesting lecture on "Facilities for post graduate work for medicos in the western clinics," was delivered by Dr. Shetty. He impressed on the audience that Vienna was the best place. After the meeting terminated these present were taken round the wards.

The Trichinopoly Medical Association.

A monthly meeting of the above Association was held at 4.30 P.M., on Saturday the 20th April '35, at the Government Head Quarters Hospital, Trichinopoly. About 35 members were present. Dr. R. Doraiswamy was "At Home". Capt. Sangham Lal, I. M. S., F. R. C. S., District Medical Officer, Trichinopoly, presided.

Dr. T. S. S. Rajan demonstrated a case of stricture of the oesophagus. The patient, an average built young man of 30 complained of difficulty in swallowing for seven years, the trouble arising without any apparent cause. He developed acute obstruction for four days. Stomach tube could be passed up to the obstruction, when an opening was felt patent enough to admit fluids. X-Ray showed a bag shaped dilatation above the stricture. One or two members suspected it might be a case of "Diverticulum" and a few others suspected "Spasmodic stricture".

Dr. Kalamegham then demonstrated a case from the Head Quarters Hospital, operated upon for Sub-phrenic abscess and which later on, was found to communicate with the stomach as evidenced by the colouring matter given by mouth coming from the operated wound.

Dr. M. R. Subramanyam of Valliyana read a short and interesting paper on "Brachial Block Anaesthesia" explaining the anatomy of the Brachial region and said that this form of anaesthesia was very useful and simple with a little care. He gave details of a case, he had operated recently.

In his concluding remarks, Capt. Sangham Lal congratulated Dr. Subramanyam and admired his courage and skill in performing the operation in a rural dispensary.

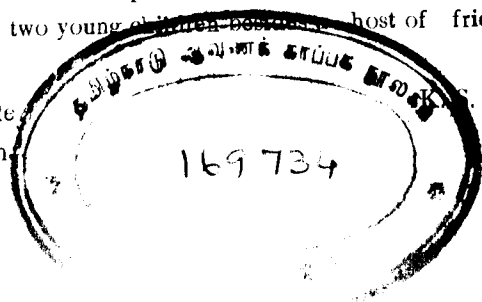
In proposing a vote of thanks to the host, lecturer and the Chairman, the Secretary wished that more Rural practitioners would come forward with case notes and read them before the Association. The meeting then terminated at a late hour.

OBITUARY.

I deeply regret to report the sad and untimely death of Dr. V. K. Hariharan, L.M.P., Medical Officer, Yelverton Estate, Ceylon at the young age of 35. He contracted Typhoid fever and was immediately removed to the Government Hospital. In spite of all possible best medical aid he expired on 4th May at 8.15 P.M. He leaves behind, his aged mother, wife and two young children, a host of friends and relations to bemoan his loss.

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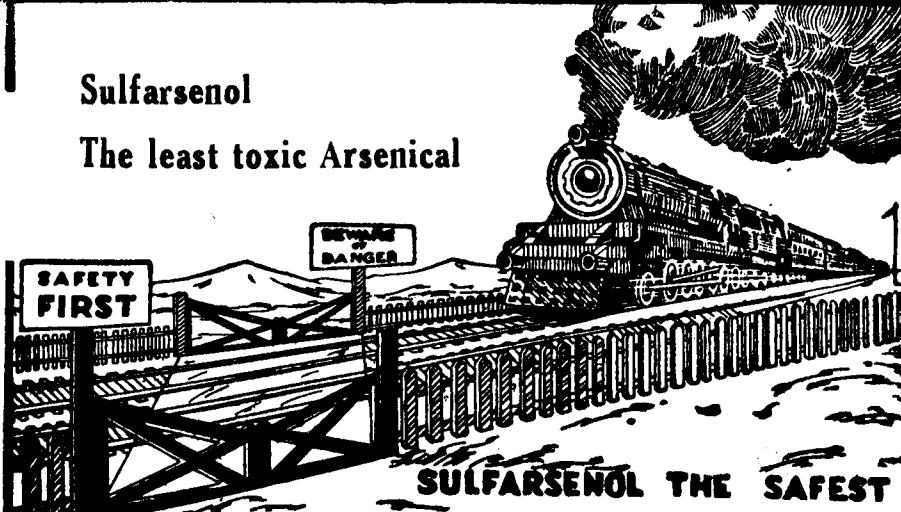
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CAUTION.

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.

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CANCER (Anæmia of)	Hepatrol, Cryogenine.
DENTAL CARIES:	Pulmo Calcium, Fer-Ma-Pho.
DYSMENORRHOEA: (Pains of)	Cryogenine.
ECZEMA: (Irritation of)	Cryogenine.
FLATULENCE:	Sedogastrine, Papyta.
GLAUCOMA: (Pains of)	Cryogenine.
GOUT:	Iodalose, Urogenine.
HYPEREMESIS GRAVIDARUM:	Opocrin Ovary, Oestryl.
HAEMORRHOIDS:	Mycol, Mictasol.
HYPERSECRECTIONS:	Sedogastrine, Genoscopamine, Genatropine.
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INFLUENZA:	Orargol.
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METRITIS:	Cryogenine.
OSTEO MALACIA:	Calcium, Cryogenine, Opocrin Pituitary.
OBESITY:	Iodalose.
PAINS:	Cryogenine.
POST OPERATIVE PAINS:	Cryogenine.
PRURITIS:	Cryogenine.
PREPARATORY TREATMENTS BEFORE OPERATION:	Cryogenine, Agocholine.
PYREXIA:	Cryogenine.
REGURGITATIONS:	Sedogastrine.
SMALL-POX:	Cryogenine.
URTICARIA:	Mycol.
WHOOPING COUGH:	Iodaseptine, Felsol.
WORMS:	Rectopanbiline.

THE ANGLO FRENCH DRUG Co. (Eastn.) Ltd.,

POST BOX NO. 460.

BOMBAY.