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EDITED BY

Dr. U. RAMA RAU & U. KRISHNA RAU, M.B., B.S.

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CONTENTS

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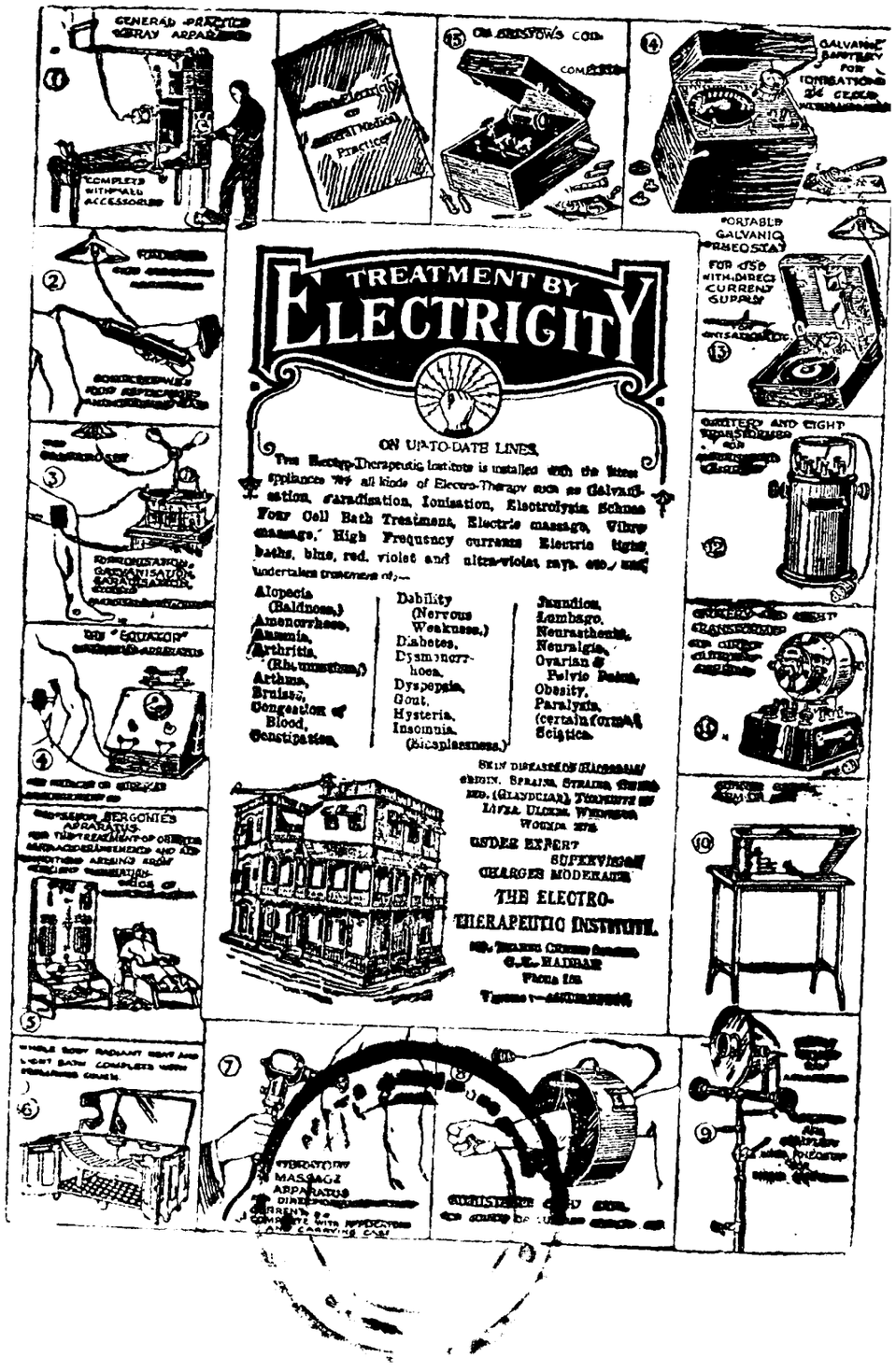

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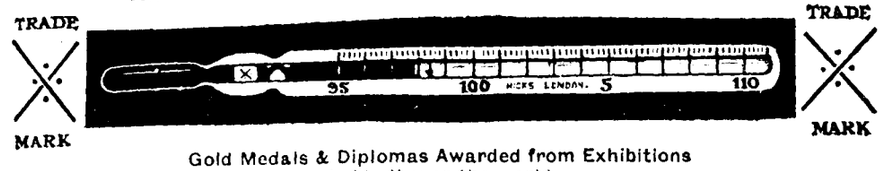

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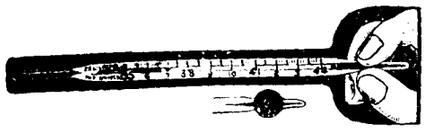

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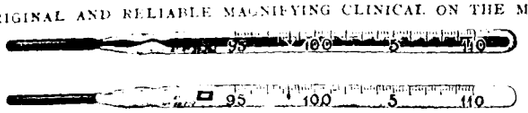

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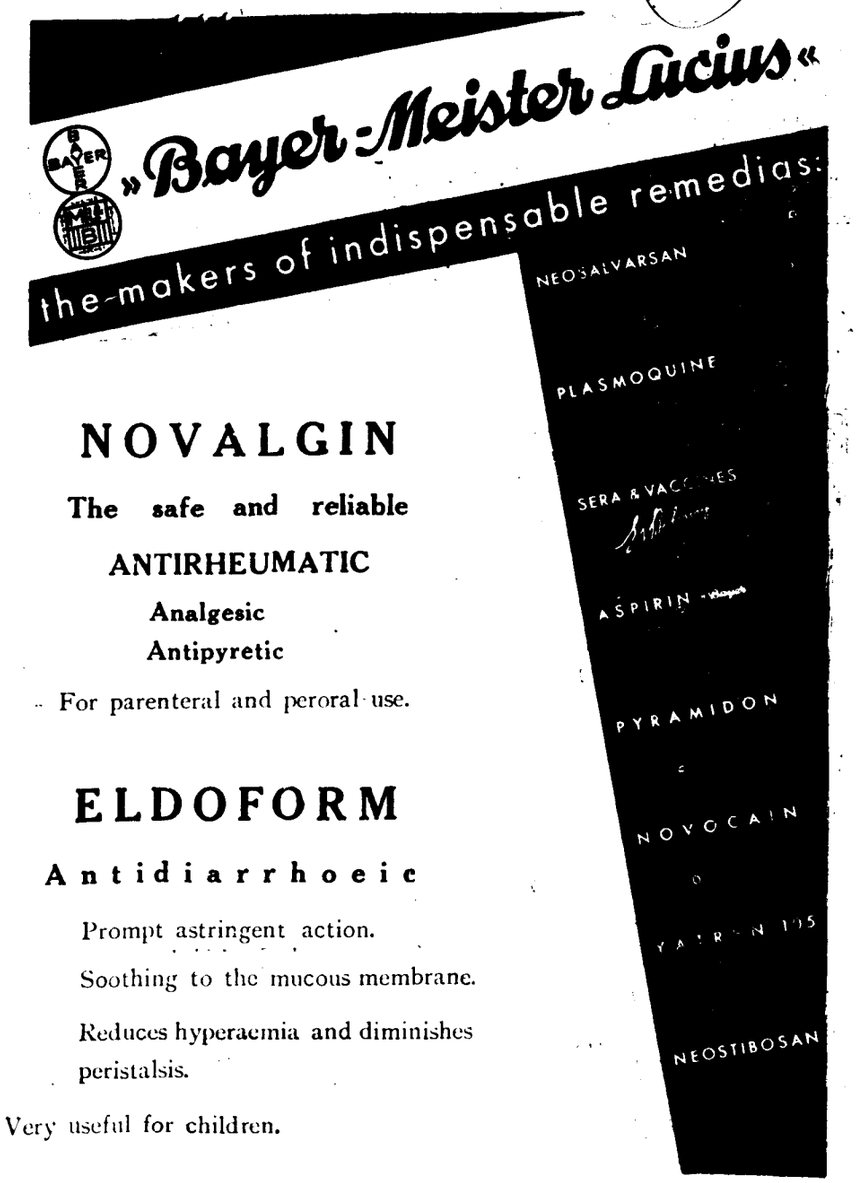

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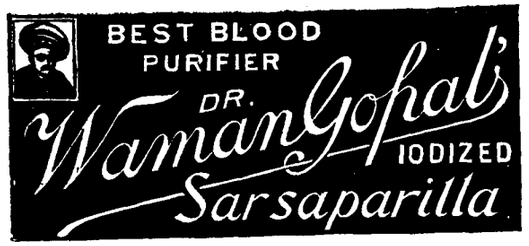

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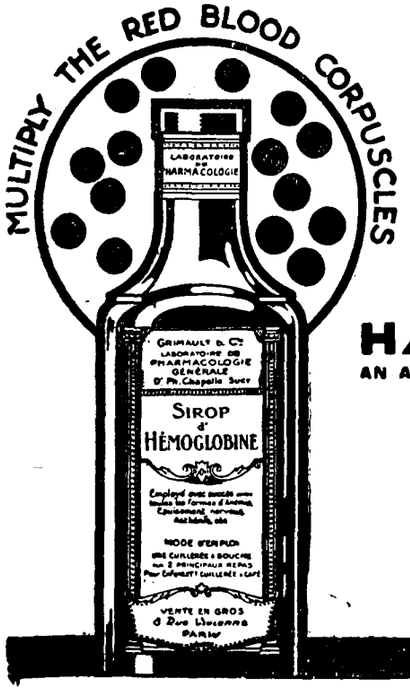

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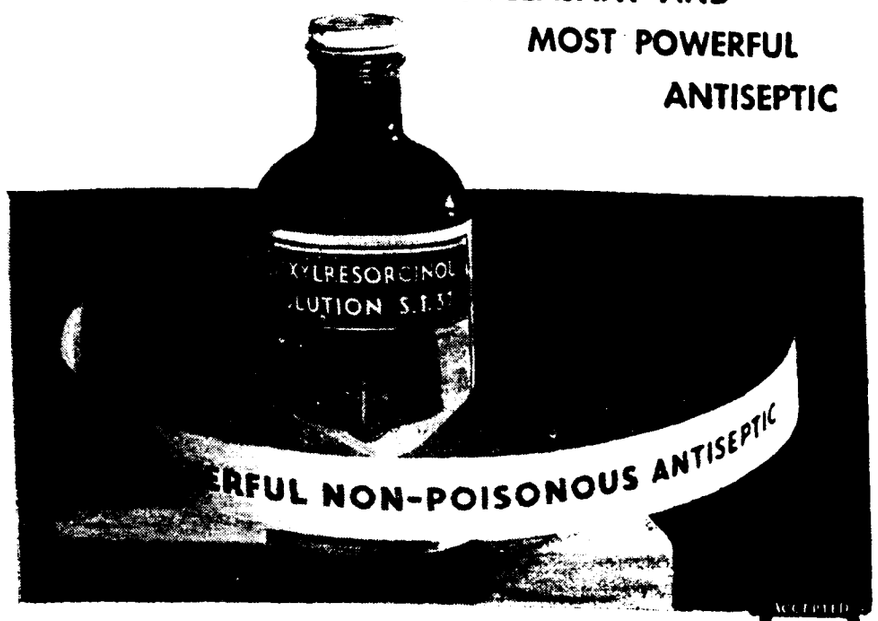

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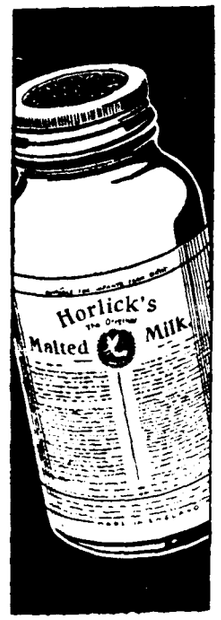

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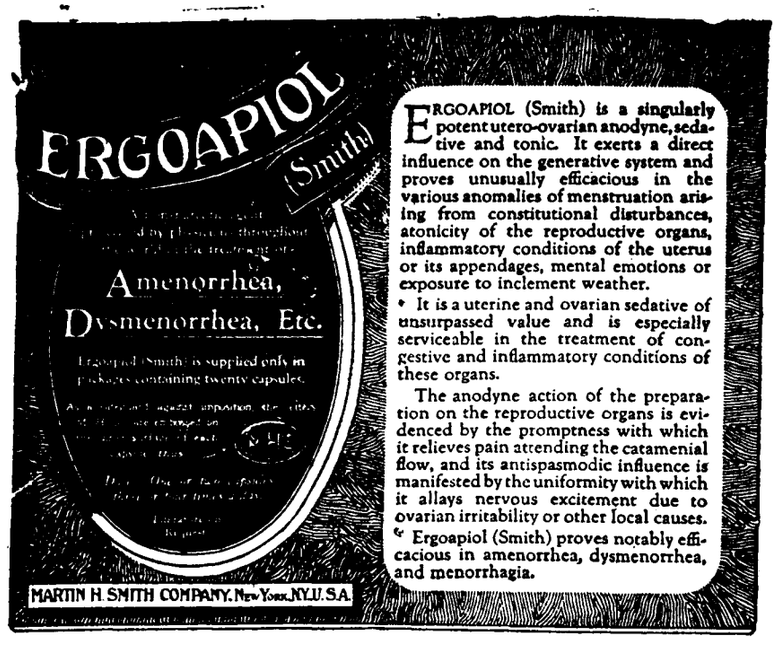

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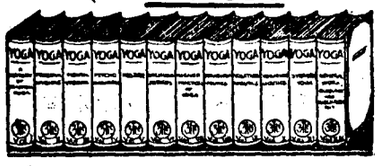

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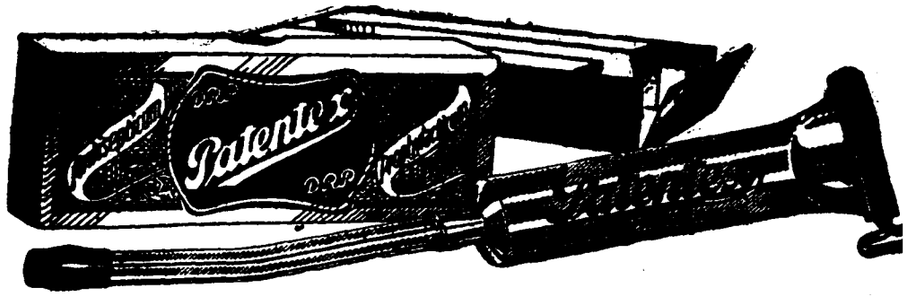

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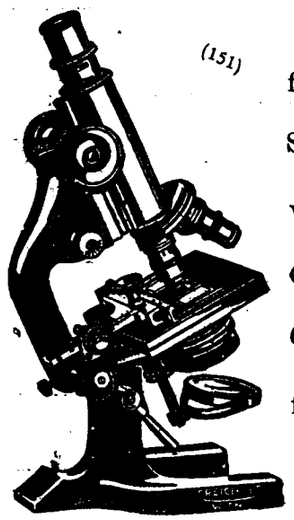

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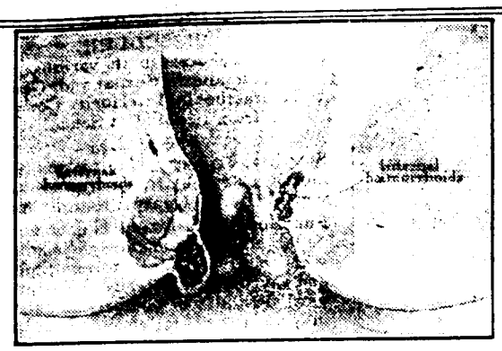

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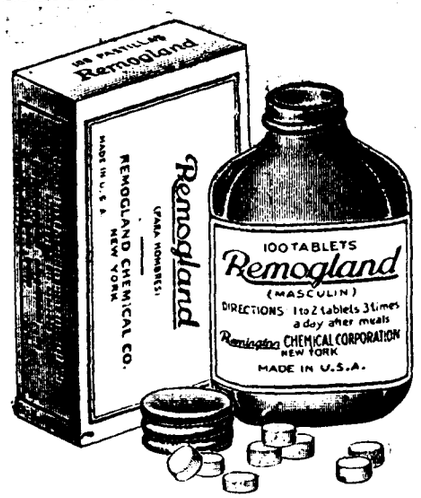

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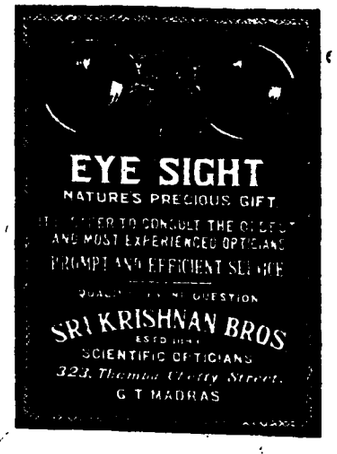

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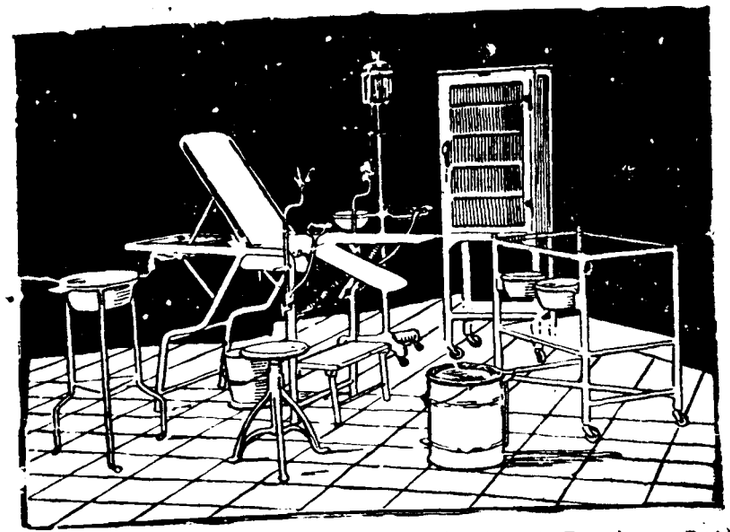

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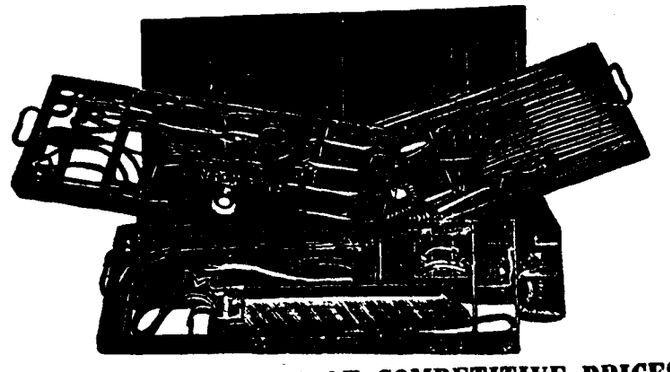

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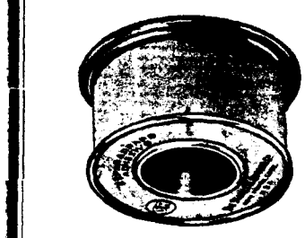

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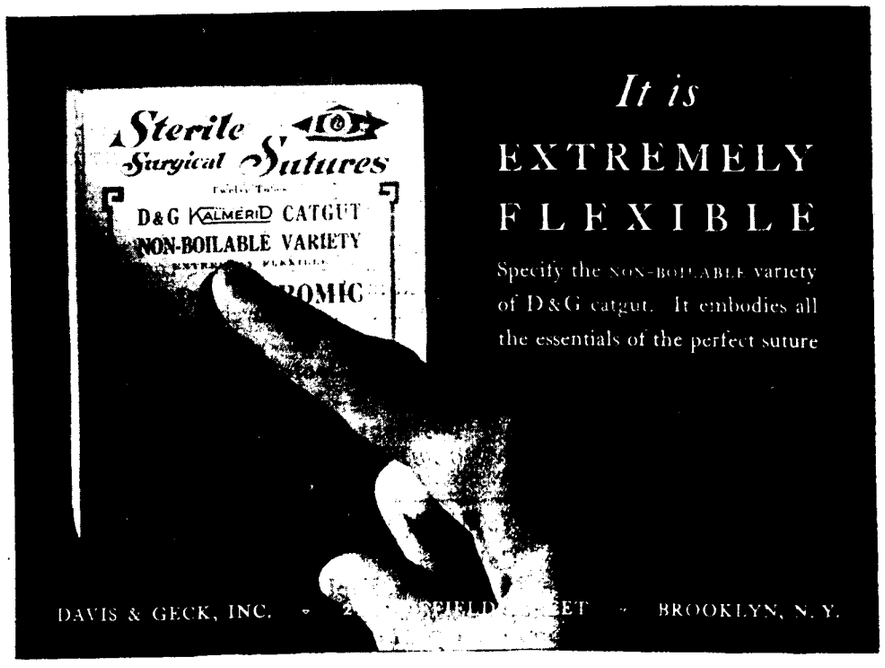

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Original Articles.

ON THE EARLY PATHOLOGY OF PULMONARY TUBERCULOSIS.*

By

RAO BAHADUR DR. M. KESAVA PAI, M.D.,

Director, Tuberculosis Institute and Superintendent, Tuberculosis Hospital, Madras.

The earlier investigations on the subject were made in the postmortem room. Records of the results of postmortem examinations at the St. George's Hospital [1] in London as early as the period 1840-50 showed that 29.7 % of children of 15 years and below had gross tuberculous lesions. Eastwood and Griffith [2] in England produced figures to show that in the postmortem room 35 % children below 2 years, 52 % between 2 and 4 years, 58 % between 4 and 6 years and 77 % between 6 and 10 years had tuberculous lesions. Harbitz [3] in Sweden, during 1898-1911 observed in the postmortems of 484 children dying from all causes that 20 %, 26.2 %, 31.8 %, 67.9 %, 62.2 %, 81.1 % and 80 % showed tuberculous lesions in the age periods, 0-1, 1-2, 3-4, 5-6, 7-10, 11-14 and 15 years respectively. Reinhardt [4] at Berne showed by 460 autopsies that whilst 28 newborn infants had no traces of tuberculosis, 29.16 % children below 16 years showed active tuberculous lesions and 96.38 % of adults showed tuberculous

* Specially contributed to the "Antiseptic."

lesions of some kind. Several other pathologists including Opie, Naegeli and Buickhardt have given similar figures for tuberculous infection.

Another fact noticed at these autopsies is that the younger the subjects the larger the number of active lesions and the older the subjects the larger the number of healed or healing lesions.

It was Opie[5] (J. of Exp. Med. 1917-25-885, 26. 263- quoted by Fishberg-Pulm Tuberculosis-1922 Edition p. 66) who first attempted to employ the X-ray in locating deep seated tuberculous nodules in the lung with the idea of dissecting and identifying them at the post-mortem examination. On examining a large number of cases he considered that the vast majority of focal lesions in the lung originated in childhood, about 50 % commencing before the third year of life.

Austrian,[6] from an investigation made at the out-patient's department of the John Hopkin's Hospital, New York, showed that of 84 children that showed an enlargement of the mediastinal shadow with more or less localized infiltration of lung, the Von Pirquet reaction was positive in 60, only 40 giving a history of exposure to infection. He considers that slight widening of the mediastinal shadow does not necessarily indicate tuberculous infection, but the presence of dense shadows with irregular edges or definitely rounded dense shadows in the mediastinum should be looked for. He observes however that enlargement of the mediastinal shadows is seen more often in children exposed to tuberculosis than in those not so exposed, but as such enlargements are found after measles and whooping cough and in tonsillitis, adenoids etc., and in children giving a negative Von Pirquet reaction, the interpretation of the shadows as due to tuberculosis is not always justified.

Krause[7] & [8] considers that adult tuberculosis is the ultimate result of factors of environment and inheritance on the tuberculous lesions of childhood, which "advance or retreat, become active or smoulder and become inactive for longer or shorter periods, indolently or fulminantly, continuously or haltingly". As more physicians become familiar with the masked and obscure manifestations of tuberculosis in infancy, they will be able to prevent the later manifestations and outbreaks by adequate measures.

For the purpose of this investigation the skiagrams of 164 children of 15 years and below were collected and closely scrutinized. These children were mostly from families resident in the city of Madras and exposed to tuberculous infection. Many of them were contacts of known open cases of pulmonary tuberculosis. They presented themselves at the out-patients' department of the Government Tuberculosis Institute for recurring coughs and colds, bronchitis, irregular fever, malnutrition, diarrhoea, abdominal

troubles, glandular enlargements etc., in fact the various ailments for which different classes of patients present themselves for diagnosis and treatment at the Institute. A minute examination was made of every child, its age and body weight were recorded, the physical signs especially of the chest and abdomen were noted in the charts, an inspection for glandular enlargement was carefully made, a Von Pirquet test was applied, the temperature and pulse on admission were recorded and a skiagram of the chest taken. In fact all possible factors were noted in the case card and chart to enable a clinical diagnosis to be made and compared with the X-ray findings.

An analysis of the results in tabular form according to ages is given in Table I.

TABLE I

Showing the results of X-ray examination of the lungs at different ages in 164 infants and children.

Age period	No. of children.	Von Pirquet's reaction.				Results of X-ray examination.				Glandular enlargement present.			No. of cases with a history of exposure to infection at home.
		–	+	++	+ ++	+	++	+ ++	++ ++	Cervical.	Axillary.	Inguinal.	
0 to 3 months	4	0	0	0	0	4	0	0	0	1	0	0	?
3 to 6 months	3	0	1	0	0	2	1	0	0	3	0	0	2
6 to 12 months	7	1	4	1	0	2	4	1	0	6	4	3	1
1 to 2 years	15	0	10	3	0	1	11	2	1	14	8	6	2
2 to 5 years	53	1	25	10	0	2	31	19	1	41	14	12	4
5 to 10 years	75	1	46	24	1	1	32	31	1	75	18	15	4
10 to 15 years	7	0	3	3	0	0	3	4	0	7	0	0	?

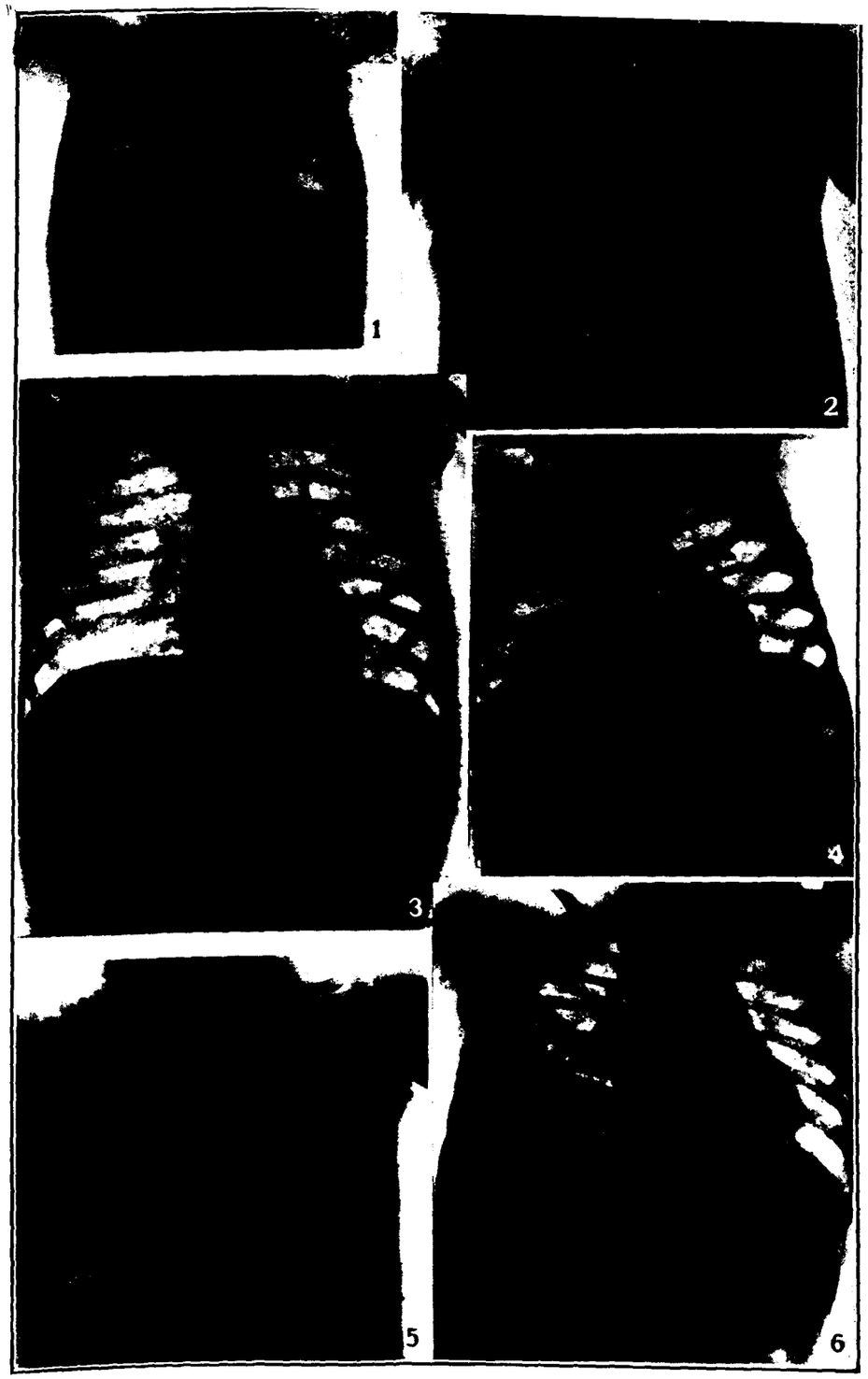
In recording the X-ray examination it was noticed that in infants of less than 6 months the hilus shadow consisted of an oval area of moderate opacity about 2 to 3 cm. in size better seen on the right side than on the left, where it is mostly covered by the heart shadow. From the hilus opacity, a faint arborization could be distinguished with the filaments extending to the base, thicker than those going to the other parts of the periphery (Vide Fig 1) these representing the bronchial tree. In older children the hilus shadow was seen to increase in area and thickness and in many cases peribronchial

thickening could be distinguished extending towards the upper and lower lobes of the lung (Vide Figs. 2, 3 and 4). In still more advanced cases, definite mottling in the parenchyma between the peribronchial thickenings could be seen (Vide Fig. 5). Rounded opacities of higher density than the background could sometimes be made out in and around the hilus shadow representing caseating glands and in more chronic cases calcareous masses could be distinguished in and around the hilum, these particles being also found in a few instances at varying distances from the hilus along the thickened bronchial tubes especially in older children. To denote the extent of involvement in the tabular statement the + sign has been used. Thus + represents the normal hilus shadow of moderate intensity with the wiry filamentous ramification representing bronchial tubes.

++ represents a thicker hilus shadow with peribronchial thickening extending about 3 to 5 cms. upwards and downwards and with a fair amount of parenchymal mottling as well. This is an early stage of infiltration outside the hilum.

+++ represents considerable thickening and deposits in and around the hilum and the peribronchial and parenchymatous tissue of the lung, often in patches. This indicates a more advanced involvement and extension from the hilum.

++++ indicates a very advanced condition with the greater part of one or both the lungs involved with extensive deposits, and the hilus opacity much denser and larger than in health (Vide Fig. 6). Cavitation was also noticed in 2 of these cases. It is interesting to note that the involvement of the lungs is greater as the age advances. Thus up to the third month no appreciable change could be made out in the hilus shadows. Between the 3rd and 6th months about 25% of children show very early involvement. Between 6 and 12 months, 66% show early involvement and between the 2nd & 5th year practically all the children show some amount of abnormality in the skiagram. It has been said that a certain percentage of these thickenings and shadows might be due to other causes than tuberculosis and that they have been noticed in cases of tonsillitis, adenoids, measles, whooping cough etc., where there was no clinical evidence of tuberculosis. Excluding the earlier lesions and taking only the more advanced ones into account we see from the table that though there is no appreciable abnormality up to the sixth month of life, 14% of children between 6 and 12 months, 20% between 1 and 2 years, 40% between 2 and 5 years, 57% between 5 and 10 years and 60% between 10 and 15 years show definitely advanced lesions, the presence of which could not reasonably be questioned. Physical examination of these children has revealed besides the signs of bronchitis, a certain degree of impairment of percussion, harshness of breath sounds with a typical D'Espine's sign



in some cases. The general condition, with pyrexia, anæmia, anorexia and hæmoptysis in a few cases, pleurisy and peritonitis in some others and an impairment of general health fully warranted a diagnosis of incipient and clinical tuberculosis.

The presence of glandular enlargement mostly in the cervical region to which attention has been drawn and significance attached in one of the papers read by me[9] at the Science Congress of January 1930 and the presence of a positive Von Pirquet's reaction in these children further confirm the diagnosis of early tuberculous infection. Von Pirquet's reaction of any degree whilst being absent in the first three months is elicited in 24 % of children between 3 to 6 months, in 70% between 6 and 12 months, 86% in the 2nd year and nearly 100 % after the 2nd year. But if only marked Von Pirquet's reactions are taken into consideration excluding the faint reactions the figures for the respective age periods are 0% (3 months), 0% (3-6 months), 14% (6-12 months), 20 % (2nd year), 20% (2-5 yrs.), 34% (5-10 yrs.) and 42% (10-15 ys.) respectively. A similar curve is seen for glandular enlargement commencing with 24 % within the first three months of life and going on to 64 % in the 2nd half year, 78 % between 2 to 5 years and 98 % in the 10 to 15 years' period. Whilst there is no clear proof that all these glandular enlargements are due to tuberculous infection, the similarity in the above curves for Von Pirquet's reaction, glandular enlargement and X-ray evidence of tuberculous disease is most striking.

It can therefore be concluded from an analysis of these 164 cases that tuberculous involvement of hilus glands occurs very early in infancy commencing even in the first 6 months of life, that extension of disease in the lung takes place along the peribronchial lymphatics and that the so-called early apical infiltration of adolescence is only the final stage of such extension from the hilus glands involved in infancy. This view is further confirmed by the analysis of 1497 skiagrams made by us[10] at the Government Tubersculosis Hospital of Madras wherein it was seen that true initial apical involvement above the level of the 1st rib in front is a very rare occurrence having been noticed in only 4 out of the 1497 cases.

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EXPLANATORY NOTES TO SKIAGRAMS.

No. 1. Skiagram of chest of baby 5 weeks old—perfectly normal lungs—note normal arborization especially in right Lung ; hilus shadows are not observed.

No. 2. Skiagram of chest of child five months old, history of infection from mother ; note hilus shadow on left side with small nodular opacities of the hilus glands.

No. 3. Skiagram of chest of child one year old ; note hilus opacitis on both sides, more marked on the right. Some peribronchial infiltration towards right base and both apices.

No. 4. Chest of child one year old ; note well marked, hilus opacities on both sides with nodular thickenings within them; also mottling of lung substance especially on the right side due to discrete tubercles.

No. 5. Chest of child two years old ; well marked hilus opacities on both sides with diffuse peribronchial fibrosis in both lungs.

No. 6. Skiagram of chest of child of 2½ years ; note dense hilus involvement on right side with extensive peri-bronchial infiltration in greater part of right Lung ; mild hilus shadow on left side.

OXALURIA AND PHOSPHATURIA.

BY

MAJOR P. V. KARAMCHANDANI, M.B.B.S., M.R.C.P., A.I.R.O.

'Devi Villa,' Dadu, Sind.

These are two fairly common ailments which confront the practitioner now and again and if not properly interpreted cause considerable damage to his prestige. I have chosen to deal with them together because neurasthenia is a common symptom in both and as the saying goes "Neurasthenic tends to Oxaluria when his urine is very acid, but to Phosphaturia when it is not very acid," it will be quite in keeping if I treat them in one article.

* Specially contributed to the "Antiseptic."

OXALURIA.

By oxaluria is meant passage of Oxalates in urine in an amount to be deposited as envelope or dumb-bell shaped Calcium oxalate crystals. The origin of oxalates is mainly exogenous i.e. from foods and partly endogenous i.e. from decomposition of Uric acid within the body.

Exogenous source :—Certain articles of diet are rich in oxalates, greater part of which exists in an insoluble form. But acid of gastric juice by decomposing these, helps the absorption of alimentary oxalates. Following is the list of foods which contain oxalates :—

Rhubarb, Spinach, Sorrel Strawberries, Figs, Potatoes, Beet-root, Frenchbeans, Tomatoes, Plums, Tea, Coffee, Cocoa. (The first four contain 0.24 to 0.36% of Oxalic acid.)

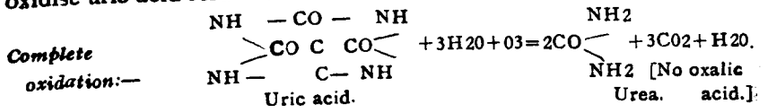
The following foods are free from oxlates :—

Peas, asparagus, mushrooms, onions, lettuce, cauliflower, rice, pears, peaches, grapes, melons, wheat and oats.

Whereas presence of acid in gastric juice aids the absorption of oxalates from foods rich in oxalates, absence of the same, leads to similiar results if excessive amount of starch be present in the stomach. The mechanism which now comes in play is the fermentation of carbohydrate diet which produces oxalic acid, while organic acid aids its own absorption.

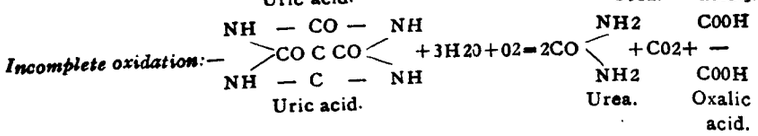
Endogenous source :—This is from the decomposition of uric acid, which occurs in the liver. It has been experimentally shown that perfusion of uric acid through an excised liver results in the formation of oxalic acid. Failure on the part of liver to completely oxidise uric acid results in oxaluria. This is what happens :—

Complete oxidation:—



Uric acid. Urea. [No oxalic acid.]

Incomplete oxidation:—



Uric acid. Urea. Oxalic acid.

The common symptom of oxaluria is urinary irritation. Now and again in the tropics specially during the summer season when excessive perspiration reduces the quantity of urine the patient comes to the doctor complaining of painful micturition with smarting sensation and slight haematuria in extreme cases. Malaria being a common ailment the patient receives alkali and quinine treatment which helps him for a while but offers no permanant relief. If the doctor be more careful and happens to test the urine chemically he may find traces of albumin ... due only to mechanical irritation of the renal

passages by the oxalate crystals...and miss the mark, as centrifuge and microscope is owned by but few of the private practitioners which alone reveal the true nature of the disease. Depression, lassitude, neuralgic pains in the back and headaches lead one to suspect a renal calculus and unless correct treatment is resorted to, the patient becomes hypochondriac and the worry resulting therefrom perpetuates the vicious circle. Fermentative dyspepsia which is more a cause of the disease than an accompanying symptom, unless treated thoroughly and carefully, causes more and more absorbtion of oxalates with ever increasing misery of the patient, ending perhaps in a calculus. Cardinal indications for the treatment therefore are :—

1. Stop diet rich in oxalates. Peas and lemon juice should be an important item of diet when available. Peas are poor in oxalates but rich in magnesia, latter of which has special value as it renders the oxalates soluble. Lemon juice on account of citric acid prevents formation of calcium oxalate, by combining with calcium and forming calcuim citrate...a soluble salt, thus throwing calcium out of action.

2. As above, administer magnesia and potassium citrate. Potassium citras in addition to diverting calcium, being diuretic dilutes the urine. Another drug that has been used most successfully in cases of crisis is Acid Sodium Phosphate in drachm dozes well diluted in water. It is supposed to dissolve small oxalate calculi by increasing urinary acidity just as increased gastric acidity helps the absorption of intestinal oxalates.

3. Treat fermentative dyspepsia and attend to general health. Since the classification of dyspepsias is often confounding I shall briefly outline what I exactly mean and then give my line of treatment. Although excess of starchy diet apparently strikes one as the predominant factor in production of fermentative dyspepsia, the real causa causans is deficiency of hydrochloric acid in the gastric juice. The presence of acid is not only essential for the activity of the gastric ferment viz. pepsin but also for the flow of the pancreatic juice because 'secretion'...the specific stimulant for pancreatic juice is formed by the action of hydrochloric acid on 'prosecretin' stored in the intestinal mucosa. The functions of pancreatic juice include digestion of fats and elaboration of those carbohydrates which have escaped the action of ptyalin. It is thus evident how important proper percentage of hydrochloric acid is in the process of digestion of all the proximate principles of diet. Having determined the deficiency of hydrochloric acid in the gastric juice by gastric analysis I begin treatment by first freeing the primae viæ by

calomel and stimulating the skin by a hot bath. I then prescribe the following mixture :—

℞

Acid Hydrochloric dil	gr xx—xxv
Liq : Strychnine	mv
Glycerine pepsin	3i
Liq : morph : hydrochlor :	mx
Liq : Arsenic : hydrochlor ;	mii
Aqua menthi pip :	3i

M : Sig : T.I.D. immediately after food.

Acid hydrochloric is given to make up the deficiency ; liq: strichnine to conserve the nervous energy, the leakage of which reduces the 'electro motive power' required for motors in various organs ; glycerine pepsin is given for its specific action ; liq : morphia for soothing the mucosa and enabling it to tolerate the stimulating action of hydrochloric acid and strychnine... being omitted no sooner the mucosa gets used to these ingredients ; and liq : arsenicals for its toning effect on general health.

PHOSPHATURIA.

At the outset let me point out that phosphaturia is more a symptom than disease and is commonly mistaken by the laity for spermatorrhoea. It is an experience of every doctor how depressed he finds his patient when the latter seeks his advice for discharge of what he terms is his 'man power'. In my opinion there is no condition so managable and likely to enhance reputation of the doctor with the laity as phoshpaturia. For proper understanding of this condition it is important to know the mechanism which brings it about. Commonly speaking phosphaturia means presence of phosphatic deposit in urine which may occur (*a*) in the bladder so that the last portion of urine becomes milky simulating spermatorrhoea. (*b*) When urine has been passed and the thin film forms on the surface of it. (*c*) In a test tube when the same is boiled simulating albumen but easily distinguishable by acidification. It must be remembered that this deposit is formed only by the earthy phosphates which I term "precipitating phosphates". These are of calcium, magnesium, and ammonio magnesium and which appear as stellar or star shaped crystals of calcuim belevelled edged rectangular tables of Magnesium and knife rest or coffin lid crystals of ammonia magnesium Phosphate. Tripple phosphates or feathery phosphates are other names for the last form. First two *i.e.*, Calcium and magnesium phosphates are the forms normally present in urine, while ammonia magnesium phosphate is a form resulting from ammoniocal decomposition in cystitis. Acid phosphates which I call 'non-preci-

pitating phospates ' never form any deposit. These are of sodium and potassium. Another point which I want to stress is the fact that this deposit of phosphates does not as a rule signify any increase in the output of phosphates, in other words it is not a quantitative change but a qualitative, because any urine will show such a deposit on addition of alkali. Now let us consider the mechanism which brings about the qualitative change.

The role which 'non-precipitating' phosphates play in the economy of the system is to regulate the H ion concentration of blood and form a buffer to keep the acidity of blood normal. In acidosis, there is excessive secretion of acid phosphates in urine, while in alkalosis there is diminished secretion of same thereby a normal balance of H ion concentration being maintained in the blood. This is what happens :—

$$H_3PO_4 + 2Na = Na_2HPO_4 \longrightarrow \text{goes to the kidney.}$$

Increased acidity in the blood. — Salt used by blood to mop off the excessive H ion concentration.

$$Na_2HPO_4 + H_2O = NaOH + NaH_2PO_4 \longrightarrow \text{acid salt excreted in urine.}$$

This is what the kidney does. — Sends Na back to blood to be utilized for mopping H ions and saves blood from being depleted of this valuable salt.

It will thus be seen that the solution of earthy phosphates largely depends upon the reaction of urine, while the reaction of urine depends upon the presence of acid phosphates which is controlled by the condition of blood. Now let us consider the conditions of blood which can bring about deposit of phosphate in urine.

(i) Intake of foods rich in fruits and vegetables. The organic salts citrates and tartrates become bicarbonates in blood. Increase of Na salt diminishes H ion concentration in the blood and the kidney therefore secretes less acid salt in urine *i.e.* Na_2HPO_4. The quantity of acid phosphates having diminished in urine earthy phosphates deposit.

(ii) Withdrawal of acid ions from the blood. This leaves the blood less acid and the kidney has to secrete less acid phosphate to strike a balance. This occurs in conditions like hyperchlorhydria *i.e.* withdrawal of acid from the blood in form of Hydrochloric acid in gastric juice.

(iii) General depression without wasting, leading to diminished formation of acid *i.e.* fire of metabolism burning low.

(iv) Cystitis where ammoniocal decomposition in the bladder due to staphylococcal infection, leads to the formation of tripple phosphates. Presence of latter being pathognomic of this condition.

In neurasthenic conditions accompanied by marked wasting there may be actual increase in the output of phosphates in urine, the source of these phosphates being disintegration of nuclo-proteins. Similarly during resolution of pneumonia there is increase in urinary output of phosphates, these being derived from the disintegration of leucocytes. Thus in such conditions phosphaturia may only be a symptom of wasting or result of leucocytic breakdown.

Indications for the treatment therefore are to seek the cause and to treat it.

(i) Survey the diet and see if the exogenous source is predominant. Alteration of diet with some tonic and advice that what he thinks is the discharge of his 'man power' is nothing but phosphaturia is all that may be required. To prove to him that your reading of his trouble is true cut off his milk, eggs, fish, fruits and vegetables and give him instead meat, potatoes; pulses and wheat, when the phosphates cease to deposit.

(ii) If there be hyperchlorhydria, I usually give :

Liq : Bis. hydratis	℥i-℥ii
Mag : Ponderosa	gr x
Acid Hydrocyanic dil	mi
Tino. Cardimum co	miii
Aqua	℥i

M. Sig ℥i T.I.D. post cib

I also prohibit the patient from taking Sodium chloride as I believe it to be a source of hydrochloric acid in the gastric juice.

(iii) If the examination of urinary deposit reveals tripple phosphates attention must be directed to cystitis.

(iv) In case of depressed metabolism give tonics and augment it temporarily by acid which he can't make. Explain to him that phosphaturia is merely an indication of his low spirits and the moment he is taken out of it he will make a rapid recovery.

(v) Finally if the wasting be present investigate the underlying cause and treat it.

ROENTGEN DIAGNOSIS OF THE GASTRO-INTESTINAL TRACT AND THE IMPORTANCE OF X-RAY STUDY OF THE MUCOSA AND RUGAE. *

By

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At the Third International Congress of Radiology in Paris last July, Dr. Cole of New York presented a paper on 'the radiological exploration of the Mucosa of the gastro-intestinal tract', in which he mentioned the great advance made since the Stockholm Congress and emphasised the following direct findings : the silhoutte of the filled organ in profile, the appearance of the mucus membrane folds (their thickness and pattern), and the pliability of the mucosa to peristalsis. Since then I was in Vienna, and am more convinced by the methods there than elsewhere. Surgical and Necropsy specimens have been prepared and found to conform to the radiological findings. The time was when we had to depend on the indirect signs in diagnosing organic gastro-intestinal lesions, and we were not sure of our conclusions ; the morphological changes of the gastric muscosa demonstrable by the pathologists was not a great diagnostic aid during lifetime of the patient and before the surgeon interfered.

Since the Rœntgen study of the gastric mucosa and rugae by Prof. Holzknecht's School in Vienna, and Forsell, Berg, Lenk and others and improvements in technique, we are now in a position to directly demonstrate not only organic lesions but all abnormal gastric conditions at different stages from a gastritis to a large tumour of cancerous infiltration. An intensive study of gross and microscopical sections has enabled the finding of the character of the anatomical and pathological structures that cause the well-known and some of the unfamiliar gastric lesions ; and these compared with the radiogram adds to the assurance with which one may interpret the X-ray findings in terms of Anatomy and Pathology. Prof. Holzknecht's School has a technique in vogue for the past five years with various improvements as it is to-day. Tendency is towards methods of demonstrating the rugæ on the fluoroscopic screen, and various devices to take radiographs with or without compression during fluoroscopy so as to have a permanent record of the findings.

Contrast Media :—For the Oesophagus, liquid barium emulsion is used, and when thicker Media is necessary, barium paste with

* Read at the Radiological Section of the 8th All-India Medical Conference at Calcutta 1932 and sent specially to the " Antiseptic " for publication.

water, liquid paraffin or marmalade. For the stomach, plain emulsion of barium and water is used, as it is considered that any flavouring or sweetening material, milk, or buttermilk will immediately cause gastric secretion in the presence of which barium glides down without filling the mucus folds and the rugæ cannot be demonstrated. For the colon a barium enema is used, and after expulsion of the barium an examination is made again ; then air is injected into the bowel (Weber's modification of Fischer's method) and a third examination is made. No G. I. examination is considered complete without colon radioscopy.

Motility :—To test the motility a motor meal consisting of 40 grams of barium mixed with oatmeal gruel and milk is administered five hours before the patient calls at the institute for examination and no other food or drink is allowed in the meanwhile. The meal is observed to have reached terminal coils of the ileum or the cœcum in 4 to 5 hours in cases of normal motility, hepatic flexure in 6 to 8 hours, sigmoid in 20 hours and the rectum in 24 hours. The stomach should be empty in 5 to 6 hours allowing margin for variations. Delay in passage or stasis is interpreted as mechanical obstruction, organic stricture, spasm or atony.

Oesophagus :—Normal oesophagus shows narrow longitudinal folds in its entire course ; however, in cachectic individuals folds might be definitely narrowed. Inflammatory changes are evidenced by marked widening of the rugae. The demonstration of this pathologic change is important not only in the not infrequent oesophagitis but more so in complications like diverticula, oesophageal hernias and peptic ulcers of the oesophagus. Mucosal examination is a great help in determining the extent, localisation and diagnosis of Carcinoma and the differentiation of benign from malignant strictures ; diagnosis of cardiospasm is facilitated by recognition of the continuity of the mucosal folds in the region of the Cardia.

During the act of deglutition the barium emulsion fills the space between the tongue and epiglottis, the recesses pyriformis on either side, around the cricoid cartilage, before getting into the oesophagus. A picture taken in a true lateral view shows such an irregular shaped shadow, that, though really normal, it could be mistaken for malignant infiltration of the region. Best examined in the 1st and 2nd oblique positions, the oesophagus is normally narrowed at the level of the jugular fossa, bifurcation of the trachea, and the cardiac end; these are also common seats of malignant disease which shows a narrow tortuous canal with irregular filling defects. Old mediastinal inflammatory conditions, pleurisy and calcified glands at the bifurcation of the trachea cause adhesions and traction on the wall of the œsophagus resulting in an irregular shadow of traction diverticulum. Such diverticula might perforate into the trachea or bronchii.

Thorough examination for lesions of the lower end of the œsophagus is very important. Patient must not only be examined in the upright position, but also lying down with elevation of the pelvis, closely associated as it is with conditions of the cardiaca of the stomach. Normal passage of barium through cardia shows physiological differences, depending on the consistency of the contrast medium, and the position of the patient. While lying down the patient is asked to suck barium emulsion placed in a bowl near by, with a fair sized rubber tubing.

The physiological influence of the diaphragm is interesting. The complete closure of the cardia during the inspiratory contraction of the diaphragm, causes the contrast media to accumulate; coincident with the elevation of the relaxing diaphragm during expiration, the pillars relax allowing the barium to pass into the stomach. This sort of milking-down contraction induced by the diaphragm can be noticed on careful screen-examination; the surgeon, however, feels the same by inserting a finger into the gastro-oesophageal opening through a gastrostomy. The diaphragm is also considered to influence the shape of the stomach, and the intragastric tension, and also initiate peristalsis by its compressing and lifting action on the fundus.

Pathologic disturbances in the passage of barium through the cardia are caused most frequently by cardiospasm and Carcinoma; the less frequent cicatricial strictures, ulcers, diverticula and compression caused by diseases of the neighbouring organs have also to be considered. A cardiospasm of duration with its smooth outlines has caused secondary dilatation and enlargement of the tube above—but prior to this stage may present difficulties. Organic lesions, specially small neoplasms of the cardia, stomach or oesophagus, lead to early symptoms of such a spasm and only repeated examinations at intervals can help to differentiate the types. Pathological lesions of surrounding organs may occasionally be mistaken for carcinomatous obstruction of the Cardiac region; such are inflammatory or neoplastic enlargements of cardiac glands, or metastatic nodes of the left lobe of the liver. Ulcers of the lower oesophagus are rare and have more regular outline, the walls being free from infiltrations as one finds in malignancy. Smooth and more extensive multiple strictures are more or less typical for cicatricial strictures of caustics.

Diverticula and pseudo diverticula though easily recognised, food particles in them may simulate malignancy. Enlarged mediastinal glands shows a round defect in the wall with normal smooth rugae. Foreign bodies non-opaque to X-rays arrest to a varying degree the passage of opaque meal. Rarely a retro-oesophageal abscess caused by a foreign body (sharp piece of bone) is seen, and may present the appearance of a diverticulum if filled with barium.

Closely related to the posterior heart (left auricle) oesophagus shows displacement to the right and posteriorly in enlargement of that chamber; and various degrees of deviations of the tube as a whole is seen in cases of general enlargement of the heart. Sometimes you see a case of idiopathic dilatation of the Oesophagus and shadows a smooth walled, dilated and elongated tube curved to the right.

Stomach :—When well-filled a normal stomach shows concave or convex and rounded outlines, the borders are never straight, angulated, or irregular in the absence of pathology. To take a picture of the rugae of the whole organ without compression it is usual to administer a thin suspension of barium, two tablespoonfuls in quarter litre of water—a P. A. view being taken in the prone position. However for more correctly seeing the different parts of the stomach on the screen, a couple of mouthfuls of barium emulsion is swallowed, and with gentle kneading with the gloved hand or the "Distinctor" (a wooden spoon shaped contrivance with a suitable handle and a thin matallic ring designed by Prof. Holzknecht, which saves the radiologist unnecessary exposure of his hand to the rays) the opaque meal is moved to various parts of the organ. It is important that there is no mucus secretion, as otherwise the barium will slide down without filling the villae and the rugae cannot be visualised.

Normally we have parallel, longitudinal rugae along the lesser curvature confirming with its shape, transverse rugæ along the greater curvature, and a combination of both in the region of the fundus. The pyloric antrum has transverse rugæ running up towards the pyloric canal, parallel with the concavity of the lesser curvature. The lesser curvature is usually regular and smooth; the greater curvature shows irregularities caused by the filling of the transverse folds. Some consider them as separate structures, while others think they are caused by the spiral folds of the longitudinal rugæ.

Larger rugæ and more irregular greater curvature are signs of gastritis. When the rugæ are irregular and tortuous, but smooth, it is due to circumscribed elevations and depression of the swollen mucus membrane of an acute gastritis. The smoothness and continuity with the normal rugae in the neighbourhood distinguishes it from ulcer (the rugae are seen to converge towards seat of ulcer) and cancer (the rugae are absent at the seat of infiltration). Gastritis might be general or localised in antrum as in alcoholic gastritis, or after a gastro jejunostomy and the signs and irregularity are observed in the affected areas. In atrophic gastritis mucosal folds are flattened, narrowed, or obliterated; in hypertrophic type the mucosa is swollen—thick and wide folds specially in the antrum

and near the greater curvature and may show polypoid changes. In anaemia the rugae are thinner.

In the neighbourhood of gastric ulcer and carcinomas wartlike granular surface of the mucosa is seen. Convergence of the mucosal folds towards crater of ulcer is familiar. Symptoms of gastric ulcer will persist so long as there is any mucosal change, though the ulcer niche itself has disappeared. Early neoplasms are recognised by persistent transverse folds or sudden break in their continuity, where you normally find longitudinal folds ; or both the conditions might be present.

In juxta pyloric ulcer with marked antrum gastritis, coarsely thickened and transverse rugae are seen around the antrum, possibly due to pull on account of peri-gastric adhesions. Atypical arrangement of the rugae in the region of canalis egostorius due to adhesions caused by chronic ulcer of stomach or duodenum and secondary inflammation of the serosa of the pancreas (perivisceritis pancreatica), is the result of traction on the posterior wall by these adhesions. Extra-gastric lesions like pancreatitis and less frequently cholecystitis, appendicitis and chronic mesenteric lymphadenitis, through lymphatic drainage give rise to infection of bursa omentalis ; and the adhesions between posterior stomach wall and the bursa cause abnormal transverse rugae.

After noting the condition of the rugae more opaque emulsion is given and all the sides of the stomach seen carefully by turning the patient into the 1st and 2nd oblique and lateral positions, Then he is placed on the horizontal screening table and examined chiefly for the fundus and pyloric anomalies, in the prone and supine positions and various angles. All abnormalities in size, shape and position are noticed and recorded.

While cancerous infiltrations might be noticed in any part of the stomach, the common places are the Cardiac region (Fundus), body (along the greater curvature), and the Pyloric region. The Cardiac and fundus are best seen with the patient supine on a horizontal flouroscopic table in the right anterior oblique position and the pelvis slightly raised—raising the pelvis fills the fundus and the oblique position helps to throw the shadow of the spine out of the field. Now the patient stands behind a vertical screen, and the barium sticking to the folds at the cardia as against the transulesence of the air bubble in the fundus helps a good study of this region. The irregular filling defect, tumour infiltration, tortuous condition of the oesophageal opening and canal, and varying degrees of obstruction caused, are all carefully noted.

Cancer of the body in addition to absence and irregularity of the rugae, show a filling defect at the seat of infiltration. Three

types are usually recognised—medullary or adenomatous, schirrous and the large niche type. Medullary type shows large irregular filling defect of tumour mass and malignant hourglass contractions according to extent of the lesion; no peristaltic wave is seen over the seat of infiltration. If a picture is taken (prior to administration of barium) after giving some effervescent powder to fill stomach with air, an image identical to that following contrast filling is obtained, one may presume there is organic cycatricial fixation or tumour defect : while otherwise spasm may be diagnosed. Scirrhous cancer shows no marginal filling defect into the lumen of the viscera but complete infiltration of the stomach wall which becomes rigid with destruction of the musculature; the margins are straight, kinked and angulated and rugae absent. The large niche type is an exulcerated cancer showing destruction of musculature, irregular margin above and below lesion and defect.

Gastric syphilis is difficult to differentiate from types of cancer. Absence of palpable mass, lack of cachexia in proportion to the size of the lesion are characteristic—you get a positive history of syphilis. Lesion begins mostly near the pylorus, extending towards the body; there is no tumour infiltration into the lumen of the stomach, though both the curves show symmetrical filling defect and cause narrowing the channel. More straight than really tortuous and relatively smooth though with small marginal irregularities as compared with scirrhous carcinoma, in syphilis there is absence of peristalsis too at the seat of infiltration. Large lesion in the lesser curvature, with an age incidence between 20 and 40 should bring syphilis into mind. Positive serum reaction helps diagnosis. After anti-leutic treatments, the scar of the healed lesion shows smooth outline and the the patient's physical condition considerably improves. The rugae, however, cannot be discerned.

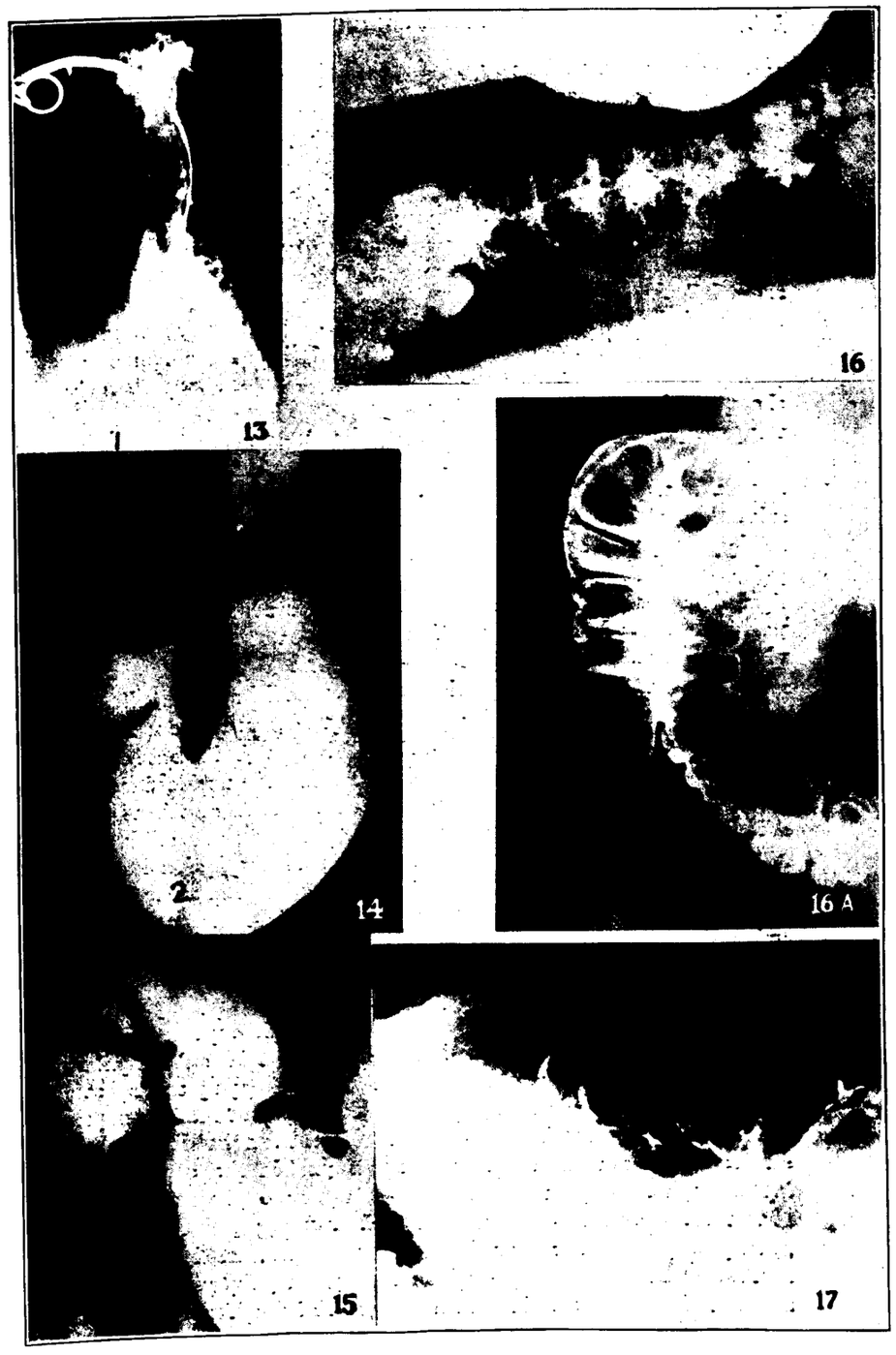
The pyloric region presents greater difficulties, as one considers the incidence of nearly 60 % of all gastric cancers, 69 % of benign gastric tumours, and 10 % of gastric ulcers in this region (Mayo clinic report), and in addition the great frequency of spasm. The small quantity of barium and observation of the rugae is again an indispensable aid. Malignant lesions about the pylorus can be grouped as polypoid and scirrhous carcinomas, and malignant degeneration of benign ulcers and benign tumours. Polypoid type has a prediliction for the lesser curvature and as it gets larger has a tendency to ulceration; the crater of the ulcer and defect are observed on slight compression, and is accompanied by marked stenosis of the pylorus. Scihrrous carcinoma shows a stomach diminished in size, irregular, and tubular, with a rigid open pylorus, the rapid emptying causing secondary dilatation of the duodenal bulb. The malignant degeneration of benign ulcers and tumours.

is more common when situated near the pylorus. A detailed examination of this region is done with the patient lying prone, slightly oblique plane by raising the left shoulder. The rigid irregular margin with defects, and the absence of rugae and peristalsis in cancer are noted as compared with the smooth round margins, peristalsis and continuity of the rugae in benign conditions. Cancer gives rise to retention by obstruction; later antiperistalsis sets in and the contents of the stomach are thrown out.

A circumscribed round defect with the rugae going smoothly around it is characteristic of polypii—when these are multiple the condition is gastric polyposis and gives rise to considerable disturbance of gastric function.

Benign ulcers are common in the lesser curvature; when near the pyloric canal on account of the associated spasm the patient comes early for relief. It calls for considerable attention to note the situation whether in the canal itself or one or the other side of it. The common deformity associated with the prepyloric ulcer however, is the snail shaped stomach caused by the flattening of the lesser curvature on account of the spastic contraction and pull exercised by the longitudinal muscle, resulting in an approach of the pylorus to the cardiac end. The greater curvature contiguous to the pyloric opening is drawn towards the lesser curvature by the coincident spasm of the circular muscle causing a rolling of the stomach itself. An incisura is noticed opposite the seat of ulcer. When there is no obstruction hyperperistalsis is present and the duodenum may not be visible in profile, unless antrum is shifted with the distinctor. Other ulcers in the lesser curvature show slow peristalsis, retention of barium for longer time and the niche (crater caused by erosion of the mucosa and submucosa being filled by the contrast media). The niche accompanied by convergent rugae is a sign of active ulcer and the convergent rugae alone formed by the cycatrix, that it has healed. Greater destruction into the muscle cause larger niche; the barium filling may show a level with air above; but the smooth outlines above and below, and the presence of rugae around differentiates it from malignancy. There is spastic incisura in the greater curvature; when it is considerable dividing upper from lower part of stomach, is termed benign hourglass stomach. One has always to report whether it is functional, spasmodic, or organic caused by the fibrous scarry adhesions of surrounding inflammatory conditions.

Hypertrophic stenosis of the pyloric canal will cause a dilated stomach and is distinguished by its smooth outlines from ulcer in the canal itself; ulcer shows the niche on compression; cancer shows irregular defects and tortuous canal. Spasm in the canal is relieved



by antispasmodics or sometimes by making the patient lie down on the right side for a few minutes, after drinking barium emulsion. Of course careful palpation and compression and manipulation to move super imposing parts of the Pyloric antrum is essential to visualise the canal itself.

Duodenum:—The duodenal bulb is that segment of the digestive tract between the pyloric ring and the descending portion of the duodenum. It presents a base, an apex, and four walls. The patient has to be rotated into the right and left oblique positions to see all the walls of the bulb, anterior, posterior and two lateral walls. The two lateral walls are improperly called margins or curvatures. The bulb is the preferred location for the ulcers, as a rule multiple (kissing ulcers) occasionally single duodenal ulcers are seen—they may however be associated with ulcer or cancer in the stomach. The X-ray deformities of the cap vary according to location and stage of development of the ulcer, which may be situated at the base near the pylorus or at the periphery; and in the walls in their centre or margins. Normal duodenum shows smooth rugae continuous with the pylorus; in ulceration shows deformities and thick and swollen mucosa. Three stages in the ulcer can be defined. 1. Initial ulcer, 2. ulcer with extensive areas of sclerosis and scarring and 3. the end results of sclerosis. In the first stage a niche is seen, form of a nail head or star defined on slight compression when situated on the anterior or posterior wall, and a niche in profile if on the lateral walls; and when the niche is filled with air (rare) a clear shadow may be seen. Presence of air in the niche is a sign of great penetration into the wall and that perforation is imminent. In the second stage when sclerosis of the walls has developed giving characteristic deformities of the bulb, we see (on slight compression) rigidity of the wall at the seat of the ulcer with convergence of rugae, eccentricity of the bulb in relation to the pylorus, incisura on the opposite non-sclerosed wall and pockets (recesses) caused by these incisurae. In the third stage varying degrees of rigidity of the cavity of the duodenum caused possibly by the various transitory stages of spastic incisura blending into the permanent retraction of one of the walls. The cap may be deformed by adhesions in cases of cholecystitis, or sometimes the latter symptoms may be caused by a duodenal ulcer! The pressure of an enlarged gall bladder shows a crescent shaped impression on the angulus of the bulb. Gall bladder impressions are on the anterior wall at the apex, while ulcers are near the pylorus and the recesses are characteristic.

Diverticula of the duodenum is usually located in the 2nd part, in the concavity of the curve, and shows a continuity of the rugae. Careful examination in vertical and particularly in the prone position is essential to demonstrate the condition. If the cap or the

contents of the bowels and examined again. The collapsed walls with barium in the folds in small quantities depict the condition of the rugæ—transverse and circular rugæ in the cœcum, ascending and transverse colon; diagonally concentric rugæ crossing each other in the descending colon; and longitudinal rugæ in the sigmoid and rectum. The haustration of the colon and the musculature become more evident when distended by air inflation. The rugæ show cobweb appearance in ulceration. Filling defect into the lumen with absence of rugæ is a sign of tumour infiltration; and irregular surroundings are due to sclerosis of malignancy. Deformities seen with the opaque enema and after expulsion of the contents are confirmed as organic or abnormal conditions if they persist after air injection; or else it is due to spasm.

Common conditions in the colon are the various forms of colitis, (dysenteries), cancer and tubercular affections. Diverticulosis is common in the sigmoid and is recognised by small peduncle shaped shadow running out of the haustrations (diverticuli filled with barium) when inflamed, the condition is called diverticulitis and causes considerable symptoms. Recognition of rugæ in the diverticula help to differentiate from ulceration. The air injection after expulsion of barium enema helps greatly in the diagnosis of polyposis of the colon the contour of the polypoid growths outlined clearly against the air filled lumen. In conditions like colitis, dysentery and spastic colon the fine mucus membrane network is replaced by an irregular granular appearance or abnormally prominent folds. Superficial inflammations show spastic contractions only. Starlike rugae are caused by ulcers. When the walls are more sclerosed, haustration disappears, and the lumen gets narrower (chronic colitis). Air injection shows the mottles of barium filling the ulcer crater and rings of barium in the folds around. In acute colitis the barium enema is almost completely expelled on account of the great quantity of inflammatory exudate and air inflation is a painful procedure. However, some barium globules in the form of a string along the long axis of the colon may be seen. When ulcers have penetrated into the walls, cul-de-sacs of ulcer-base filled with barium are noticed. In the sigmoid this may produce any degree of obstruction consequent on the sclerosis and stenosis, and may present difficulties in diagnosing from cancer. Cancer, however, is more circumscribed, rarely more than 2 to 4 c. m, in length. Ulcerative colitis shows extensive sclerosis and narrowing. In the rectum, ulcerative proctitis is usually accompanied by sigmoiditis above, and shows angular and irregular filling defects. The large extent of the lesion again helps in the differential diagnosis from the cancer of the rectum. It should be borne in mind that lack of haustration is present in cases of atony and dilatation of the colon, but it is necessary to recognise

that the dilatation is more than three fingers' breadth and that there is no sclerosis of the walls.

The differential diagnosis of cancer and T. B. affections of colon is so important, that I propose to study them together. Cancer is common in the sigmoid, less so in the right flexure of the colon, and rare in the caecum. T. B. is the commonest in the Caecum and very rare in the sigmoid colon. The Caecum may show large infiltrations which might be hyper-plastic type of T. B. or cancer. Cancer is more situated around the ileocæcal valve and in the medial part, while T. B. affection is usually lower in the caecum, to the lateral part of it and below the valve. Diseased caecum is characterised by barium being delayed (about 9 hours or more after meal) on account of spasm in the valve; and on account of the irritation of the lesion, barium is quickly passed up from the cæcum. For T. B. of the caecum both barium meal and enema methods are advocated and air inflation. The terminal ileum and the part of the caecum below the valve get filled normally in about six hours after the meal. The spasm or organic stricture in the caecum causes the meal to go up the ascending colon without filling the part below the valve. Air inflation after expulsion of opaque enema shows irregular defects tumour mass, organic narrowing etc. If the rugæ are normal, the defect is caused by traction and adhesions of a perivisceral process. If rugæ are absent and the lesion is localised, it is cancer; for multiple carcinomas of colon are rare. If associated with inflammatory signs in other parts of the colon, and multiple stenosis in the terminal coils of the ileum, it is probably T. B. T. B. always causes insufficiency of the ileocaecal valve; in cancer, on account of its situation the opening is more closed and obstructed. A pathological condition with a large defect in the upper part of the ascending colon, with a normal shaped caecum, is most probably a cancerous infiltration. Cancer in the region of the caecum is usually an adenocarcinoma and is a rare condition in the caecum. The neighbouring area shows normal rugæ. A large filling defect in the lower and lateral part of the caecum, and the ascending colon showing mottles and signs of inflammation (by Weber's technique) is characteristic of hyperplastic T. B. Cancer in the sigmoid might cause definite obstruction and is characterised by irregular defects on both sides and narrowing of the bowel lumen.

Various inflammatory conditions and tumours of other abdominal organs cause adhesions to the various parts of the gastro intestinal tract. The shape is altered and the position displaced. The following are few of the many such conditions: A hypernephroma pushing the colon anteriorly and downwards, pancreatic cyst lateralwards; tumour of the head of the pancreas causing concentric displacement of the curve of the duodenum, and pressure on the

pyloric antrum; enlarged liver or spleen displacing the colon; lymphadenoma or encysted peritoneal effusion pressing on the stomach: cholecystitis with adhesions to the bulb of the duodenum simulating ulcer, or to the hepatic flexure of the colon causing defect resembling malignant infiltration; and ovarian carcinoma causing stenosis of the sigmoid. In all these conditions the mucosa is entire and helps diagnosis.

Sometimes you see a case of diaphragmatic hernia with the stomach or a loop of the colon turned up right into the chest. Oftener you see a case of high standing caecum, or transposed abdominal viscera or an elongated sigmoid (megacolon).

In conclusion the X-ray examination of the gastro-intestinal tract is one of the most exacting types to the rœntgenologist and is one of the most difficult diagnostic procedures in medicine. The possibility of overlooking a small carcinoma is so great and the consequences so serious, that the greatest care should be exercised. However, with the technique like the Vienna School, the developed Rugæ method, and an adequate equipment the intelligent Rœntgenologist can minimise fallacies to a very great extent. I cannot do better than close this paper with this quotation from Moynihan, who is perhaps England's greatest living surgeon—"In gastric cancer and malignant gastric conditions, the principle investigation depends on the radiologist—he alone—and not always he—is able to make the diagnosis in the early stages."

EXPLANATORY NOTES TO SKIAGRAMS.

1. Normal rugae-cardiac end, oesophagus opening and body.
2. Normal rugae pars descendance : longitudinal rugae along lesser curvature and transvesse rugae along greater curvature.
3. Rugae : Normal antral region.
4. Normal rugae pylorus.
5. to 9. Gastritis.
10. Thinned rugae in anaemias and atrophy of old age.
11. Malignant infiltration of stomach—note destruction of rugae.
12. Convergent rugae of ulcer.
13. Lateral view ulcer riche on the posterior surface; when fully filled. in A. P. view nothing is seen.
14. A. P. view of same case when fully filled,
15. Diverticulum—duodenum.
16. Normal folds—transverse colon after rejection of Barium enema.

16 A. Air filling of colon (Fischer's method) Trans. and desc. colon—note normal haustration.

17. Normal caecum after Fischer's method.
18. Normal caecum and ascending colon after air filling.
19. Cancer caecum after air filling.
20. T. B. caecum after air filling.
21. Colon Diverticula 24 hrs. after Barium meal,
22. Diverticula—after barium enema,
23. Diverticula—after air filling,

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6

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In July 1932.

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TUBERCULOSIS IN CHILDHOOD

" Abdominal tuberculosis is one of the commonest forms of tubercular infection in children . . . . The infection is generally bovine through contaminated milk . . . ." (" The Antiseptic," October, 1929.)

" Examination of carcasses of animals slaughtered in certain places, e.g. Ferozepur and Lahore, has revealed the existence of tuberculous lesions in 16 and 16 per cent. of animals examined—an incidence much higher than what has hitherto been found . . . . and it is probable that a systematic and a thorough examination may reveal a still higher incidence of infection." (Soparker " Indian Journal of Medical Research," October, 1929.)

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Cases & Comments.

AUXILIARY TREATMENT IN SURGICAL INFECTIONS.

By

Dr. R. C. Motwani, M.S., (Bomb.)

Prof. of Anatomy, Grant Medical College Bombay.

My views as regards treatment of surgical cases changed, as I got into civil practice. During 1914—16, while in Jail Department, I had to deal with people of excellent physique and even in cases of severe cellulitis, nothing more was needed beyond incisions and large doses of Tinct. Ferri Perchlor. From 1916 onwards, when I got into civil practice, I realised that auxiliary treatment was necessary.

I well remember a case of an Officer's wife, tired of getting boils. I then thought of overcoming her run down condition by giving her Ferri et Quinine Citras and a little Liq. Arsenicalis and she responded very well.

The worst cases that tax the practitioner are Diabetics and in them something in addition to their constitutional treatment is necessary. I tried in the beginning Insulin and Stannoxyl or Calcium Sulphide in addition to surgical treatment in cases of carbuncles, but was not satisfied with the end results. For a time I got good results with Insulin and Manganese butyrate, but the drawbacks of Manganese butyrate were, painful swellings at the site of injection and irritation of urinary tract: so I had to give up Manganese butyrate treatment. As in these acute cases, vaccines were out of question, I first tried Staphylococcal Serum and Insulin in Carbuncles and Streptococcal Serum with Insulin in Cellulitis in Diabetes, the results were marvellous. I remember 2 very trying cases.

(1) A male 52 years old, urine showing 8% sugar and acetone. He, during an interval of about 2 months' illness, had 7 carbuncles. One behind the nape of the neck, 2 on back of arms, 2 in the Inguinal region and 2 at the back of the legs. He was running a temperature of 102-104.° At one time he showed pulmonary congestion too. Insulin was increased to make urine acetone and sugar free. In cases where acetone persisted while urine became sugar free, it is advisable to increase the amount of Insulin and exhibit at the same time glucose or oranges to counteract possibility of Hypoglycæmia. The

amount of Serum injected was 10 c. c. combined with appropriate doses of Insulin. Of course dietary precautions were taken and the patient completely recovered.

(2) The second case was that of a young man who after a carbuncle developed Liver and pyæmic abscesses. Here Manganese butyrate failed, but under Staphylococcal Serum injection he recovered both from carbuncle and pyæmic abscess. In this case Iodine injections were tried too without avail.

Another type of worrying case, one meets in private practice is a subacute case of infection after delivery, where there may be a small lump in the parametrium, or Salpinx, where one cannot do much in the way of operation, as small lump neither disappears nor comes up to the surface and the patient keeps up a slight rise of temperature. In these cases I have found 2 drugs useful; (1) a few injections of S. U. M. (British Drug House), or (2) 7-10 drops of following solution in milk twice a day. About an ounce of dry Garlic is cleaned and put in a bottle containing Pure Rectified Spirit 4 oz. After about fortnight, the solution is decanted off and kept in a clean bottle.

In conclusion I would point out that in individuals, constitutional facts should be taken into consideration rather than reliance only placed on knife.

A CASE OF PHLEGMASIA DOLENS OF THE ARM.

By

Dr. J. P. Sinha

M. O. Pirpainti Hospital, Bhagalpur Dt. B. & O.

A lady, III para was confined easily. Nothing untoward happened till the third day, when the temperature suddenly rose to 104° and excruciating pain was felt in the left shoulder, the inner side of the arm and flexer aspect of forearm. Hypodermic injections of morphia were given, but only relieved pain for a couple of hours after their administration. The day after the commencement of pain, the arm began to swell, and on the third day the whole of the upper limb was characteristically swollen, the temperature kept high for fully a week and then showed some signs of becoming normal. The uterine discharge during the course of the disease was erratic; for a day it would be profuse and then for another 48 hours it would almost stop entirely, the uterus was kept well disinfected with antiseptics, and all the details of antispetic midwifery were carried out. The moment, therefore, of infection must have been when the patient

was confined. The labour was very quick and the husband received the child in hand, before I could arrive. The arm has been treated in the orthodox way, by absolute rest, hot fomentation and anodyne application. It is almost well now. I find in the book that the Phlegmasia Dolens of the arm is very rare and I therefore send these notes for publication.

CHYLURIA.

By

Dr. G. L. Saxona M. R. A. S.

M. O.Fort Dispy, Partabgarh City, Oudh.

With reference to Dr. Sitaramiah's query published in the February issue of the 'Antiseptic' regarding the Aetiology, Pathology & treatment of Chyluria, I give below a short account of the disease:—

Chyluria is one of the diseases caused by the Filaria Bancrofti, other pathogenic effects of the infection by this parasite are Lymph Scrotum, Lymphangitis, Varicose Inguinal Glands & Elephantiasis; all these manifestations being grouped under the term 'Filariasis.'

These parasites inhabit chiefly the blood vessels lymphatics, connective tissues & serous cavities of their host. The man is the definitative host while certain species of Culex are the intermediary hosts.

Morphology.—The adult parasite is filiform, actively motile, whitish and opaline in colour with gradually tapering ends. The cephalic extremity is rounded, and the mouth is of simple construction. The male is 70-80 mm. long by ·407 mm. broad. The female measures 155 mm. by ·71 mm. The eggs are found only in the upper part of the uterine tubes & measure 38 microns by 14 microns. The embryos which are found in the lower part of the uterus and vagina of the parent worm, as also in the host's circulation, are 270-340 microns long and 7-11 microns broad. These embryos, or Filaria Sangunis Hominis Nocturna as they are called because of their nocturnal periodicity, were first found in the peripheral blood by Lewis in 1868, Demarquay having demonstrated them in the Hydrocele fluid in 1863. During the day they disappear from the peripheral circulation and retire to the lungs and larger blood vessels. The object of this procedure is to secure their removal from the body by the night feeding mosquitoes the intermediary host; and thereby ensure their future life. But if the habits of a filarial patient are changed, and he is kept up all night and allowed to sleep during the day, this filarial periodicity is also reversed.

Examination of Blood for Embryos—Their presence in the blood can be conveniently determined by allowing a thick drop of blood spread upon a slide to dry. It is best to examine the blood which has been drawn at about 11 or 12 P.M. Stain with a two per cent. solution of Methylene blue for half a minute. If over stained decolorise with dilute Acetic Acid (4 drops in an ounce of water), and then examine with low power.

Development :—The embryos of the Filaria Bancrofti undergo developmental changes in mosquitoes which have ingested blood containing them. The embryo passes into the mosquito's stomach, where after rupturing its sheath it bores through the stomach wall of the insect and finds its way into the thoracic muscles. By this time it is 1·5 millimetres long and has a mouth and anus. It now works through its host's tissues till it reaches the salivary glands and from there it passes into the new human host through mosquito's biting. Finally the embryo soon finds its way to the lymphatic trunks where copulation takes place, and a large number of embryos are subsequently thrown into the circulation.

Symptoms :—Chyluria is due to the migration of Filaria Sanguinis Hominis from the lacteals into the urinary tracts. As a result of this, lymphatic varices are formed in the bladder wall. These varices rupture and give rise to Chyluria and Haematuria, and this explains the intermittent occurrence of Chyluria and Haemotochyluria in the disease.

The urine of a Chyluria patient may be normal in quantity or increased, and presents a milky, pinkish, or bloody appearance. This may vary in the same case during the day. The urine may be normal in the morning, bccome chylous during the day, or the reverse may be the case. The disease usually appears in paroxyms, and the affection may persist for a long time. A relapse is generally ushered in by dragging and aching sensation in the loins, groins, thighs, testes and about the pelvis. In women the disease makes its appearance after pregnancy, whilst in men it is known to follow any physical exertion, though often no such exciting cause can be determined. During the intervals, which last months and sometimes years, the patient passes normal urine. Where the affection persists, Anaemia, great Debility and Mental depression are observable. Death may be brought about by secondary bacterial infection, giving rise to deep-seated abscesses etc.

The diagnosis depends upon the characters in the urine and the presence of parasites in urine and blood etc. The presence of chyle in the urine gives it a milky white appearance. Chylous urine generally clots on standing, the coagulum, as it contracts, becomes pinker and redder; the fluid separating into a greasy cream-like substance containing oil globules and fatty granules. Chylous urine becomes clear on the addition of aether; and on boiling gives an albuminous precipitate. The embryos of the parasite are found in the urine together with some corpuscular elements, fats and albumin.

Prognosis :—The affection does not usually produce any special disturbance in the general health. Osler cites a case of 18 years' duration, the only inconvenience being the occasional passage of haemoglobin tinted chyle clots formed in the bladder, and the presence at times of uneasy sensation in the lumber regions. The condition is not directly fatal, and the patient may live a pretty long life—20 years or more.

Treatment :—As a prophylaxis the water used for drinking should be boiled or filtered, and it is also advisable to keep it stored in covered vessels so as to exclude the possibility of its being infected through mosquitoes. The patient should be kept in a recumbent position, and avoid fatty food, restricting at the same time the use of water. Manson says that a single tumblerful of milk will at once give ocular proof of the patency or otherwise of the rupture in the varix. Not until clot and albumin have entirely disappeared and the milk test gives a negative result should the patient be allowed to quit the recumbent position. A saline aperient may be advantageously given from time to time, Drugs do not appear to exert any appreciable effect on the disease. Hypodermic injections of Soamin in one grain doses may be tried twice weekly. Filarin is another preparation worth giving a trial. It is a plain special Vaccine supplied in six graduated strengths by the Bengal Immunity Co., 153, Dharamtallah Street, Calcutta.

The drain on the system should, of course, be met by plenty of nourishing diet.

AN IMPORTANT SIGNIFICANCE OF HAEMATURIA.

BY

A. N. YAGNIK M. C. P. & S. *Jaipur.*

Mr. M. A. Joshi a student aged 14 years called upon me at an early hour of a morning last December complaining of an acute pain in the lower abdomen attended with nausea, vomiting and with rigidity of the abdominal muscles.

He was then given a sedative carminative mixture which gave him considerable relief. Next morning when he again visited, he further complained of a marked oedema of scrotum with tenderness and pain over the right testicle. On inspection it was a clinical evidence of an acute hydrocele.

Subsequently on the third day oedema developed further and the left testicle got also involved. The skin of the scrotum was bluish in colour and tense and would pit on pressure.

Patient was getting pyrexia 102° F. with rigor but there was complete remission in the morning. He perspired heavily when temperature would come down. He was constipated and had a disturbed sleep. Pain was intensly felt in the affected cord.

The interesting phase of this case is the system of haematuria without pain and obstruction in the flow of urine.

There is no history of trauma and also of infective urethritis or renal trouble.

Blood examination was made; neither malarial parasite nor filaria was discovered.

Urine examination did not reveal the presence of either calculi or parasite.

The parents naturally grew anxious to know the etiology of the present case. I was fixed to give any opinion and they will not accept a misnomer explanation as ideopathic origin. It proved neither a case of renal or vesicular calculi nor infective orchitis.

How to account for painless haematuria and acute hydrocele?

Any how I proceeded with the case I gave linear superficial multiple incisions over the inflamed portion and dressed it with warm *Plumbiisubacetate Lotion* and elevated the part over a pillow. Calcium lactate and iron acid mixture were prescribed orally.

The child, improved no doubt, but was found anaemic due to haemolysis. The Haemoglobin percentage was read 40%. Lymphos were increased pre-eminently.

Though all acute symptoms subsided yet the right testicle only reduced to the size of a walnut. There was slight pain over the globus major and minor and on rectal examination seminal vesicle was felt nodular. On the 10th February he had a relapse of haematuria; the possible factor to expedite this symptom is the rough ride on a cycle. The patient was obliged to do so to obtain a coaching as his examinations are fast approaching. The fact worth noticing is that he showed evening rise of temperature without experiencing any discomfort but there was distinct wasting.

It struck me to apply Von-pirquet cutaneous test and it was highly positive in reaction.

Depending upon this diagonisis coupled with hactic rise of temperature and wasting, I placed him on the line of treament for tuberculosis. Codliver oil, tuberculine BE injections, protein diet and sanitary living were enforced. Locally exposures to ultraviolet ray were given. Topically iodex was applied. The parents have been informed of the gravity of the case and excision of the testicle to be performed eventually when medical treatment fails.

The case merits interest for the undermentioned reasons.

(*a*) It is primary tuberculosis of *Epidedimuys*.

(*b*) Haematuria is due to extra-vasation of blood in the seminal vesicle and *Vasdeferans*.

(*c*) There is no family history of tuberculosis.

(*d*) *Onset* with acute symptoms.

(*e*) Source of infection is possibly ascending downwards either from peritonema or mesentry along the process os vaginalis.

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SOME ASPECTS OF BLOOD TRANSFUSION.

The Transfusion of a definite volume of whole blood into the circulation has of late become a definite and reliable therapeutic measure, that it will not be out of place to discuss some of its aspects. It will not be within our scope in this short article to discuss the various blood groupings or to describe in detail the methods of Blood Transfusion. We propose to discuss the beneficial effects which may result from Blood Transfusion and then explain how they apply to various clinical conditions.

One of the most important effects of Blood Transfusion is to restore the bulk of the circulating fluid. This is an obvious effect and its value in certain circumstances is beyond discussion. The indication under this heading can be best judged, and safely so, only on clinical ground (i. e.) on the signs and symptoms of collapse and shock after a hæmorrhage. As there is no method of measuring the bulk of blood capable of rapid application, estimations of the hæmoglobin and blood pressure have to be taken as tests. It is now taken for granted that a systolic blood pressure of 90 m. m. is a definite indication for blood Transfusion and the importance of restoration of bulk arises practically in all cases of rapid hæmorrhage.

The provision of Oxygen for the tissues and the supply for the special functions of the blood is another of the most obvious effects of transfusion. There is evidence for the persistence in the circulation for several weeks of some portion at least of the Transfused Blood. This effect is therefore of importance not only for cases of acute haemorrhage, but also in cases of severe chronic Anaemia.

The resting of the Hæmopoietic organs and their later stimulation have also a very important effect. It is a general rule that when there is an excessive call on the reparative functions of any organ, it gives up the attempt to respond. It is not necessarily a question of exhaustion. It rather conserves its powers for a more suitable opportunity, instead of wasting its strength in doing what is not enough to be effective and its principle is very well illustrated in the cases of the Blood forming organs. This same principle also applies to deficiencies in Hæmoglobin and cells, that is to say, to the Haemopoietic tissues. It is said that a loss of 23 per cent. of fluid is rapidly repaired. For a loss of 50 per cent. there is little or no attempt at restoration, but if Transfusion adds 25 per cent. the reparative powers of the tissues come into play to replace the remaining 25 per cent. Same can be said of Hæmoglobin with Anaemia. Between 50 per cent. and 30 per cent. of Hæmoglobin, much ill-health and chronic debility can be prevented by an initial Transfusion.

The next most important effect is the influence of Blood Transfusion on Haemorrhagic factors such as Coagulation time the character of the blood clot, the bleeding time, the number of platlets. and cappillary permeability. There has been considerable confusion as to the effect of severe haemorrhage and anaemia on the coagulability of the blood. While some are of opinion that when collapse is reached as a result of haemorrhage, the coagulability of blood is increased ; there are others who believe that in Anaemia and after Haemorrhage, coagulation time is lengthened. While in the former view, the severity of the Haemorrhage is its own salvation, in the latter, transfusion is of immense value in shortening the coagulation time, and thus preventing further hæmorrhage. The modern view as a result of the experiment of Christie, Gibbs and Pemberton and others is more in favour of assuming that the coagulation time of blood is not affected by haemorrhage or anaemia and as such there is no substantial evidence that transfusion has any appreciable effect upon it.

With regard to the character of the clot formed at a bleeding spot, it has been clearly demonstrated that the clot formed by Anaemic blood is soft and deficient in fibrinogen. Blood transfusion is supposed to add to the proportion of fibrinogen present in any clot formed subsequent to injection.

The influence of blood transfusion on the blood presure also requires a very careful consideration. This has to be considered from two aspects; (a) What effect has transfusion on the blood pressure ? and (b) In what circumstances is this effect beneficial or otherwise?. On the first point there appear to be very few observations.

made except in cases of coagulation and hæmorrhage. Letheby Tidy in an article in the Clinical Journal is of opinion that the blood pressure may rise 40 to 50 m.m. but not above a figure of 120 m.m. He doubts whether with an initial blood pressure of 140 m.m. there would be much alteration.

With regard to the 2nd point, there can be no doubt, the rise of blood-pressure is very beneficial in collapse after hæmorrhage. It has, however, been argued that rise of blood pressure will increase the likelihood of a recurrence of hæmorrhage in such conditions as a bleeding gastric ulcer by promoting displacement of an unstable clot. But it must be remembered that the clot formed after transfusion will be of greater stability and that though transfusion will not effect the coagulation time of blood, it will duly prevent hæmorrhage by strengthening the clot. This theoritical argument is well supported by clinical facts.

The beneficial effects from blood transfusion as discussed above may be summarized as (1) Restoration of bulk of circulating fluid, (2) Provision of a certain amount of readymade material for the special function of the blood, (3) Rest to and stimulation of the hæmopoietic organs. (4) Rest of blood pressure. On the other hand transfusion has little or no effect on the factors influencing the hæmorrhage with the exception of adding firmness to the blood clot.

We shall now discuss, though not exhaustively, some of the indications for, and the special value of, blood transfusion in some common medical conditions. We shall first consider the Anaemias due to hæmorrhages. Their importance is obvious. One may mention hæmorrhage from Injury, from Gastric and Duodenal ulcer, from ectopic pregnancies and typhoid fevers. As to whether some of these diseases and conditions should be treated medically or surgically is still a thorny question and it is not our purpose to open an unnecessary discussion. It may however be said that if, on the lines of treatment decided upon, it is considered that a patient's life is in danger as a result of hæmorrhage, then transfusion is indicated. In Aplastic Leukæmia transfusion and even repeated transfusion is indicated. The re-actions which occur occasionally after repeated transfusion must, however, be borne in mind. Blood transfusion has also been employed in all the other forms of Leukaemia. In Pernicious Anaemia also, transfusion of blood is very valuable, though, of recent years other reliable methods of treatment are available. In those cases where relapses occur or where the response to Liver treatment is not very satisfactory, transfusion will give a fresh start. The results of blood transfusion have also been very successful in the treatment of the anaemias of sprue, kala-azar and Black-water fever and Von Jaksch's Anaemia and in that large group of chronic anaemia

which the General Practitioner comes across in his practice—all Anaemias of children and the Anaemia of the middle-aged women, complicated by conditions such as bleeding piles and menorrhagia.

The next important condition we propose to deal is Haemophilia. It is accepted that in Haemophilia there is a difficulty at one stage of the process of blood clotting. And all investigators are agreed that in active haemephilia the coagulation time is markedly shortened by blood transfusion, with resultant checking of the haemorrhage. Comparatively small amounts (50 to 100 c. c.) are sufficient. The effect of the coagulation time is, however, temporary, lasting from two to five days. It has also been suggested that haemophilics should have a transfusion regularly once every three months.

Mælena Neonatorum is another condition which is due to some specific, but temporary deficiency in the blood. The results of transfusion in checking this haemorrhage have been very successful. Intramuscular injections are equally effective and avoid the necessity for grouping the blood, which must not be omitted even in children, for Intravenous transfusion.

In Jaundice, during operations, a tendency to hæmorrhage by persistent oozing has been observed. The cause of this oozing is obscure. In Jaundice it has also been observed that the coagulation time in either acute or chronic cases, is within normal limits in most cases. It is true that prolongation of the coagulation time has been met with, but these cases have always been very severe and the patients have died shortly afterwards. Whatever may be the cause of hæmorrhage in Jaundice, whether it is due to the coagulation time being increased or whether there is a deficiency of fibrinogen, clinically and in practice, blood Transfusion has not been a great success.

The next group of diseases in which Blood transfusion cannot be relied upon to check the hæmorrhage is in Primary Purpura and other diseases with a hæmorrhagic diathesis. It is true that many years ago workers did observe a definitely curative value in transfusion, but, it has been superseded by subsequent experience. It is now definitely established that hæmorrhage rarely stops after transfusion. Severe re-actions may also follow these transfusions. In this group of diseases it may be stated, that hæmorrhage is due to two factors, primarily to undue permeability of the capillaries, and secondly to diminution in the number of platelets. It must also be remembered that in these diseases the active hæmorrhagic state may stop as suddenly as it commenced. Consequently it is our duty to keep these patients alive as long as possible, as spontaneous cure may take place at any moment. Transfusion in adding blood to the circulation is thus of some value, though one should not forget that

the number of platelets may also increase in this method of treatment. Probably the only treatment which can be regarded as being specific in this disease in Splenectomy, which however, one should hestitate to urge in acute cases, and also because of the high operative mortality.

In all these cases where Blood Transfusions are advised careful testing by cross-agglutination for compatibility should be done. Because, it must be remembered that the agglutinins are often abnormal and severe re-actions are not uncommon even with apparent compatibility.

REFERENCE.

H. Letheby Tidy M.D., F.R.C.P.—"Some medical aspects of blood Transfusion" (Clinical Journal).

SCHOOLS OF HYGIENE *

BY

PROF. K. B. MADHAVA, M.A., F.R.A.S., A.I.A. (LOND).

The "Report on the Work of the Conference of Directors of Schools of Hygiene" is not a mere routine publication as its main title indicates but is an important memorandum on health organisation—interesting and informative like most other publications issued under the imprimateur of the League of Nations. The prefatory remarks include the noble sentiment that "the progress of civilisation consists to a great extent, in the more thorough and conscientious acceptance of responsibility for human life and health by the nations of the world and by the individuals who compose the nations". This "Report" on the teaching of Hygiene in certain European countries comes in most appropriately now when in this country (in Calcutta) a Public Health and Hygiene Institute is founded or about to be founded mainly as a result of the munificence of the Rockefeller Trustees.

Specialised instruction in Hygiene may still be in an early stage of development, but there is no doubt that the industrialisation of mankind, the growth of social intercourse, and social insurance, the general advance in correlated sciences, and the War too have brought together both the Governments and the peoples in every country of the world to demand urgently practical hygiene. Altogether apart of the authoritative efforts of the Ministries of the State, of the supplementary instruction in social and preventive medicine now being given in various Medical colleges, or even of the advanced courses available in certain older Universities like the Johns Hopkins University, and the Harvard University, no less than seven special

* Being a Review on the Report on the work of the Conference of Directors of Schools of Hygiene—League of Nations—Geneva, 1930—Price 5/- net

Schools of Hygeine have recently been brought into being to do the highest class of academic work in Warsaw (1925) Budapest (1926), Zagreb (1926), London (1929), Prague, Athens and Madrid (1930 and 1931). Naturally in individual countries there are wide differences in the public health problems encountered, and the administrative methods utilised in dealing with them. These differences are evident in the mode and scope of the work of the institutions concerned in health training, but its basic principles are the same for every country: the instruction should be efficient in character, comprehensive as regards the subjects taught, and extensive with regards to the persons trained.

There can be no tarrying in regard to the insistence on the efficiency in instruction. Essentially the subject is a practical one compelling prompt, correct, and not unkindly action, and therefore needing the most varied, efficient, and thorough training. Professor Howell has pointed out too, that a School of Hygiene is "under a strong moral obligation to contribute actively to the advancement of knowledge", regardless whether that research is of a "pure" or "applied" nature.

It is usual to make some distinction between "compulsory" and "facultative" subjects, but that the range of subjects taught needs must be comprehensive admits of no doubt. Equal, if not special, emphasis should be laid on such diverse subjects as social and industrial hygiene, eugenics and sociology, field work and social insurance. It has truly been said that "public health knowledge extends from the hidden bases of immunology to the medical aspects of national insurance" and the role that may be played by an economist, an actuary, a statistician and an Eugenicist, a public worker and an administrator is no less important than that played by, say, a Doctor in Tropical Medicine. It is an added advantage therefore to associate persons of such varied attainment in the conduct of the teaching or research of a Health Institute rather than leave the major departments entirely in the charge of unilateral experts.

The persons who are to be given health training naturally fall into several different groups. Whilst every physician ought to be fully conversant with the social and preventive aspects of medicine, it is the medical officer of the health responsible for the health of the population entrusted to his care, who needs the most thorough training in the teaching and practice of health and preventive medicine. Similar instruction though of a different type should be given to the sanitary engineer as well as to the various groups of the auxiliary sanitary personnel (nurses, midwives, health visitors etc),

but the best results will only be secured by the intelligent co-operation of the general public and to this end the school master, and the clergy, the insurance office men, and the trade unionist should also be initiated.

In this "Report", other questions are also discussed, such as those relating to the teaching staff, courses of training and graduation, the authorities under which the schools should work, and the influence of schools on sanitary progress and the improvement of public health in the countries in which they exist. But the most informative part of the "Report" is the account given of the teaching of hygiene in Czechoslovakia, (Prague), France (Nancy), Germany (Breslau), Great Britain (London), Hungary (Budapest), Poland (Warsaw) and Yugoslavia (Zagreb) in well classified uniform headings—sanitary administration in the country, organisation of the work and control of the school, courses of instruction, staff and budget, followed by a map of the building in which the school is housed. It is of course difficult to summarise this part but one may find it interesting to learn that in Germany, time as under is found for the following correlated subjects: social hygiene (28 hours), industrial hygiene (14 hours), vocational guidance (6 hours), prenuptial guidance (2 hours), psychopathology of childhood and problem of modern education (12 hours), Eugenics (11 hours), elements of political economy (8 hours), legislation and practical work dealing with sickness, accident and invalidity insurance (26 hours). As an Actuary, I am further pleased to learn of the active participation given by insurance organisations and particularly by Accident Insurance Corporations in the educational work on hygienic questions among the medical and general public. The most striking development is at Zagreb where for two years there has existed the "Peasants' University" to give instruction to peasants—men and women from the villages—in the most important subjects of agriculture and hygiene (co-operative enterprise, housing, safe water supply, prevention of infectious disesaes etc.,) by which the "school has succeeded in overcoming the resistance of the peasantry against all innovations and to bridge the chasm that exists between it and the educated part of the population". In London under Professor Greenwood courses in Epidemiology and Vital Statistics are offered which include: Laws of mortality from the biological point of view, statistical studies of diphtheria, scarlet and enteric fevers, periodicity of influenza and other infectious diseases, various relations in motherhood and infant mortality, various studies in industrial hygiene, the graphic method of graduation in life tables, the official vital statistics of Scotland and Ireland. Only 2 hours are allotted to social insurance.

We are naturally interested in how the new School in our own country in Calcutta, will evolve itself. Although it is not our province to "draw up courses of instruction", it is probably permissible for us to indicate our chief requirement even by way of digression. Experimental epidemiology is still in its infancy. Dansyz (1900) being the first to create artificial epidemics amongst rodents with the object of exterminating them. But it is in the London School where by animal experiment direct questions have been put to Nature; "it soon became obvious that experiment alone, without statistical analysis of the results, could hardly be expected to yield informative answers", and during the last few years studies on experimental epidemics have been in progress by Topley, Greenwood and their collegaues "in the hope that experiment and statistics combined would solve problems which refused to yield to either method alone But it may be stated that even this progress has only related to the laws of motality as distinguished from the laws of morbidity, and the much more complex problem--the factors productive of morbidity still remains to be studied. Farr and Brownlee's thesis that the form of the epidemic wave is dependent on the progressive decline in the pathogenic attributes of the parasite has long been abandoned, but there is no clear acceptance of Gill's contention that the factor of parasitic variation is of but minor importance. It is the balance between the pathogenicity of the organism and the susceptibility of the population postulated by Peters and summed up in that most expressive phrase "the epidemic potential" that now seems to hold the day, but there too seems to be some doubt (de Rudder classifying epidemics as "true" and "false"). It therefore becomes the difficult but necessary task of the epidemiological statistician to draw up, or foretell, the course of the epidemic wave of the many diseases prevalent in this country.

Furthermore the periodic and secular changes in disease though obvious are mysterious, and the list of correlations has not been completed. The climatic factors alone productive of variations in disease are as is now well known, atmospheric temperature, relative or absolute humidity, rainfall, wind, sunshine and possibly atmospheric electricity. For instance, the close relationship in Great Britain between diarrhoea and atmospheric temperature has been established, between diarrhoea and cholera and dysentery and so on. In India itself a considerable amount of work, notably by Russell, Gill and others needs to be classified and co-ordinated. Thus Russell's work has in the main confirmed that rainfall is a predominating influence for cholera in India, although endemic and epidemic cholera appear to behave in opposite ways in relation to cliamtic factors. Temperature too is positively correlated with cholera mortality, but Sir Leonard Rogers finds a reguarly occuring decline or disappearance

of cholera in India when the absolute humidity falls to or below 0·4. In Bihar and Orissa it has been further noticed by Grieg and later by W. Ross that this is accompanied by a marked increase in the prevalence of flies. The relative humidity of the air has also been incriminated by Russell in the spread of variola in all parts of India except Madras, and so on and so forth. This list is neither complete nor is the work completed. An abundant harvest awaits the epidemiologist who applies the latest developments in statistical methodology to the problem of periodicity of diseases. It must not be forgotten too that the congestion or deterioration of the mucous membrane has been incriminated in the spread of every disease and that in its turn is immensely influenced by the nutritional factor, and in particular by the vitamin sufficiency of the food. It is idle therefore to go about the problem without surveying the national diets, or the economic background of the millions of our countrymen. In one sense the problem of public health is a problem of pure economics and to him who has got a knowledge of the realities of the conditions in the country will the book be opened with greater readiness than otherwise. The country is passing through a renaissance, agricultural labour and industrial labour has awakened to its griping needs and can only sustain by coordinated and timely effort, by a policy of insurance or "indemnification", and it is the business of the School of Hygiene perhaps to afford the actuarial basis of the many problems of national health insurance and social insurance that the State will be called upon sooner than later to set itself to.

These reflections suggested by the League of Nations Report we are reviewing and by the needs of the new School at Calcutta that is being founded must now be drawn to a close, and if I may, I would draw up a few statistics below referring to the relative share of salaries to staff in the total budget of the Schools of Hygiene in the world as Sir Nil Ratan Sircar has in his recent address at the All-India Medical Conference referred to it in a controversial way.

	(Prague) Czechoslovakia (Czech crowns)	(Budapest) Hungary Swiss	(Warsaw) Poland Francs	(Zagreb) Yugoslavia
Total expenditure	4·2 millions	34,000	210,000	675,000
Personal expenditure	2·1 millions	12,000	125,000	347,000
Percentage	50	35	60	51

In India according to Sir Nil Ratan Sircar, the percentage is 70.

No account of Hygiene institutes would be complete which failed to recognise the great part played in the setting up of these institutions by the Rockefeller Foundation whose beneficient grants have afforded Governments both moral and concrete assistance. For our own share we have (Rs. 10 lakhs for which) a most modern and exquisite building adorns Chittaranjan Central Avenue in Calcutta.

Students' Section.

A SCHEME OF CASE-TAKING.

BY

DR. K. C. PAUL M. D., *

Drawn up for the use of students working in the medical wards of the Government Royapuram Hospital, Madras.

PRELIMINARY DATA :

Name; Age; Sex; Civil State (single, married, or widowed); Race (and nationality); Religion (and caste); Occupation; Residence (address).

DATE OF ADMISSION.

COMPLAINT: Main symptom or symptoms for which patient seeks relief.

DURATION OF ILLNESS.

HISTORY (OR ANAMNESIS) :

1. HISTORY OF PRESENT ILLNESS :

Date and time of Onset : in cases where patient is unable to give definite information on this point, find out when he ceased going to work.

Mode of Onset : Sudden or gradual. Note any disturbance of health that preceded the onset (premonitory symptoms). Note also the symptoms at onset.

Cause to which patient assigns his illness.

Evolution of the illness : give the symptoms in their order of appearance. Analyse each symptom carefully.

Treatment if any, previously undergone, and its effect.

2. HISTORY OF PREVIOUS ILLNESSES :

All ailments patient suffered from since he was born. Note in each instance the nature of the ailment and its duration.

Give dates wherever possible, or at least the age at which the ailment occurred.

If patient is a child : note specially.

At what stage of pregnancy the child was born : full-term or otherwise.

*From the Department of Medicine, in the Govt. Royapuram Hospital.

Any special features regarding the delivery of the child.

Any accident or injury at birth.

Development of child : how nurtured ; (breast-fed or bottle-fed); eruption of teeth (order in which the teeth appeared ; any teething troubles); when weaned (whether weaning was associated with any digestive disturbance) ; bodily and mental growth.

Whether the child at any time had fits or convulsions.

If patient is a woman : enquire specially regarding—

Menstrual function : when commenced (in the case of young girls) ; any disturbance associated with it. Of elderly women, ask whether menopause has set in : if it has, when, and whether at its onset there was any disturbance of health.

Pregnancy : number ; whether normal or abnormal (if abnormal, how).

Labour : natural or difficult.

Miscarriages, abortions, still-births : how many and how often.

3. SOCIAL STATUS, HABITS, ENVIRONMENT :

(*a*) *Social Status* :

Rich ; middle class ; poor.

Profession or occupation : of those who are unable to state definitely what their occupation is, ask what they do to earn a living.

(*b*) *Habits* :

Food : Vegetarian or non-vegetarian. Give the diet for one day.

Exercise : What kind and how much. (Does the patient get any exercise at all ?)

Alcohol : kind and quantity of alcoholic beverage usually consumed.

Beverages such as coffee and tea : how much.

Tobacco : in what from and how much.

Betel-chewing : note specially how much *chunam* is used.

Chillies, Spices and Sweets : quantity used.

Drug habit : opium, Indian hemp (bhang), cocaine.

(*c*) *Environment* :

Where resident : nature of the locality :

Conditions in place of work and at home.

Ever been abroad :, where, when, and for how long.

4. FAMILY HISTORY:

Parents: alive and well? if not, state particulars. (if deceased, give cause of death and age at death; if ailing give nature of illness).

Brothers and Sisters; how many? all alive and well? if any deceased or ill, state particulars.

If patient is a child: place in family (1st, 2nd, 3rd, child etc.).

Any family tendency to any particular disease or diseases.

Any member of the family (near or remote) suffering from or had suffered from an ailment similar to or the same as what the patient is suffering from.

Any history of insanity in the family.

Consanguinity of parents.

(*To be continued*).

Gleanings from Medical Press.

SURGERY.

Treatment in Infancy of Congenital Dislocation of Hip.—Charles H. Jaeger, New York (*Journal A.M.A.*, Jan. 23, 1932), describes his method of treatment in infancy of congenital dislocation of the hip. It consists in principle of four points: 1. By means of a brace the affected limb is held in marked abduction, a position which favors a return of the head into the socket. 2. By means of an adjustable pad a gentle pressure is applied downward and inward on the trochanter. As a result, after four weeks the head is in the desired position, and no additional pressure is needed. 3. No standing or walking is permitted while the brace is worn. 4. The curative brace is used for about four months, when it is replaced by a convalescent splint (extending to the knee only), in which the child is allowed to walk. This is to be used for a reasonable time to permit the elongated and stretched joint structures to contract. This will hold the hip firmly in the socket, which has now been completely formed. This treatment holds good for infants who are treated during the first year of life. It is for these young children alone that this treatment is designed. This method of treatment assures a physiologic reconstruction of the acetabulum. It takes advantage of the great urge of growth in infancy to remodel all the joint structures. The roentgenograms show how quickly and completely this is done. It avoids the dangers of narcosis. manipulations and open operations. The short duration of treatment prevents muscular atrophy. This treatment, begun early and properly carried out, should result in perfect anatomic and functional cures.—*Illinois Medical Journal.*

Penile Vincent's Angina.—Wiliiam B. Tatum, M.D., F.A.C.S. Brooklyn, N. Y.—J. S. H., Stock Broker, Age 24, male, white, single. First seen January 23, 1930. Patient gave a history of having had intercourse once weekly for several months with the same girl. The last intercourse being eight days ago. At the time of intercourse he scratched his penis due to the excessive activities and two days later he developed a sore under the foreskin which was very painful and red and about the size of a 25 c-piece. He also developed six days ago ulcerations in the mouth, especially along the margins of the gums and around the lip frenum. On examination there was considerable ulceration in the mouth and a smear taken from one of these ulcers showed the spirillum and fusiform bacillus of Vincent, and a smear taken from the sore on the penis showed the same organisms. Due to the fact that the patient had just had his dinner, neosalvarsan was not given intravenously, but powdered neosalvarsan was applied to the mouth ulcerations, as well as to the one on the penis. The following day there was marked improvement and 6 grams of neosalvarsan was given intravenously. The mouth ulceration and penile ulceration were both cured and patient discharged January 30, 1930. The patient was referred to a dentist for treatment of the gingivitis.

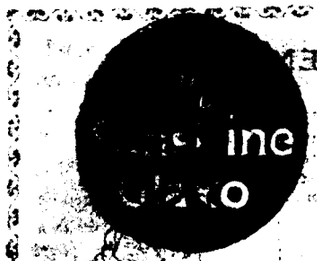
The girl with whom this patient had intercourse had been receiving treatment for Vincent's angina from the dentist for two or three months, having been to the dentist a day or two prior to the intercourse, and he had probably stirred up the infection, the patient thus contracting it. It is believed that the Vincent's infection was transmitted by means of salvia on the hands to the abrasion on the penis.—*Medical Times and Long Island Medical Journal.*

Offensive Breath.—Halitosis, as it is called politely, is one of those minor disorders that make life a misery. When aware of it the sufferer can easily develop serious depression and a painful sense of inferiority. To prevent such a misfortune the courteous Japanese it is said, consider it good manners to inhale continuously through the mouth (like an inverted ostler) during propinquity with a stranger's breath; whereby they mean to imply that nothing could be sweeter. Even we, in relatively barbarian lands, will suffer much before mentioning foetor oris to our friends, and often perhaps this is kind only to be cruel. The Medical practitioner, at any rate, should be very ready to consider and deal effectively with any such disability encountered in a patient, and he must certainly be the last to dismiss it as trivial because the cause is not apparent. First he will probably, and rightly, think of the mouth. and it is interesting to find that H. Prinz, reviewing the subject as a dentist, attributes offensive breath in at least 90 per cent. of all cases, to prolonged

stagnation of food debris about the teeth. Both carbohydrate and protein may undergo decomposition in cavities and crevices around the teeth, and any actual pyorrhœa or exposed gangrenous tooth pulp increases the odour. That food debris alone is often responsible is shown by the fact that artificial dentures which are not kept perfectly clean may become quite definitely offensive though their owners are edentulous and have no gingivitis: Wherever, therefore, there is bad breath most careful search is necessary for evidence of dental sepsis or carelessness in removal of food debris by frequent cleansing though there is always a danger that vigorous brushing with a hard brush may damage the gums and allow organisms to enter the tooth margins.

After the tooth the next commonest source of foetor oris is probably chronic pharyngitis and tonsillitis. The tonsils may appear normal on superficial examination, but more thorough search may reveal crypts containing cheesy and highly offensive material which is the cause of the smell. This is a very important condition which may only respond to tonsillectomy, though local application of silver nitrate to the crypts is sometimes effective. Chronic sinusitis is more usually productive, of a bad taste noticed by the patient himself than of any marked fœtor in his breath; atrophic rhinitis or ozæna is, of course, a recognised though luckily rare, disease in which the breath is particularly foul. Informed opinion has it that digestive disorders less often cause offensive breath than might be expected—gas brought up from the stomach directly by belching is usually odourless but may sometimes have a smell of fermentative fatty acids or hydrogen sulphide. This, however, is the smell of flatulence and not of ordinary breathing. Quite different is the origin of substances absorbed from the intestinal tract and excreted by the lung, but with experience of onions and alcohol, it is easy to imagine that tainted breath is very often due to alimentary putrefaction. Thus, it is generally believed that constipation is pretty commonly responsible. But those best qualified to judge seem to think that the products of abnormal bacterial fermentation seldom travel from the colon to the breath unless there is actual disease of the mucous membrane. Constipation, they say, is not often to be blamed for offensive breath notwithstanding the widespread belief to the contrary; enteritis is a more frequent cause than colitis, gastritis —in the absence of pyloric stenosis—less common than either.

There is no need here to do more than mention the kinds of offensive breath encountered in chronic pulmonary disease, the characteristic smells associated with uræmia, and diabetes, or the odours said to be recognisable in certain fevers and—especially by animals—when death is imminent. The problem with which we are concerned is the problem of the ambulant man, woman or child



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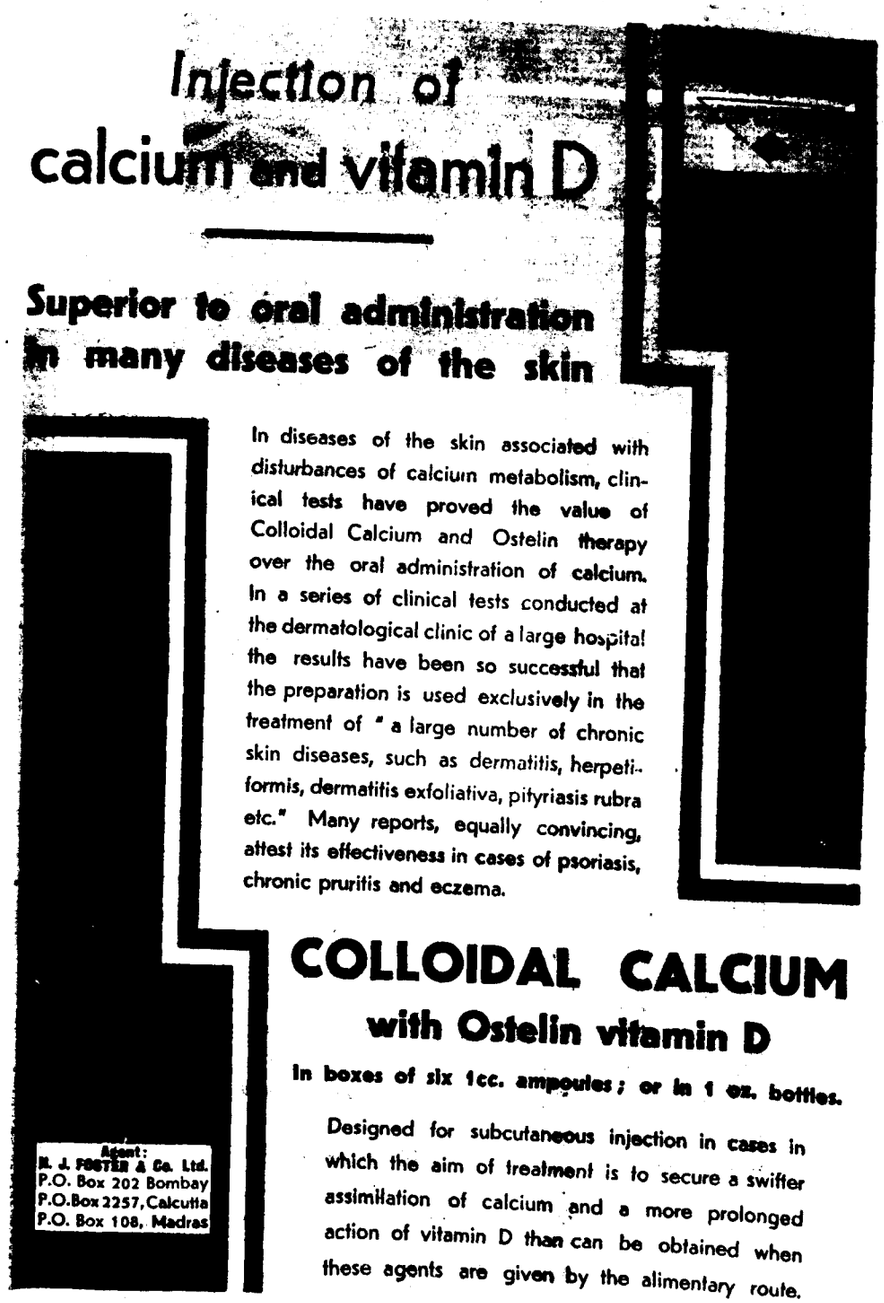

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whose trouble may be a source of much distress. In far the greatest number of such cases foetor oris has its origin in the teeth, tonsils, nasopharynx, or resporatory tract; in only a relatively small proportion is it traceable to metabolic or digestive disorders. Treatment and prevention must thus mainly be directed to the local conditions around the oral cavity, and it is correspondingly unwise to begin by concentrating one's attack on liver and bowels.—*The Lancet.*

MEDICINE AND THERAPEUTICS

The Treatment of Ascariasis (*P, A. Maplestone & A, K. Mukherji, I.M.J. Nov. '31*)—In a paper on the value of santonin prepared in India from Artemesia maritima growing in the Western Himalaya, Chopra and Chandler (1924) give particulars of twentyfive cases. They claim to have cured 92% of cases with one treatment. The adult patients were given santonin grains 5, calomel grains 5, and sodium bicarbonate grain 5, the doses for children being proportionately reduced. In nearly all cases this was given at night and a purge of magnesium sulphate in the morning. This was adopted as the routine treatment for a series of cases of uncomplicated ascaris infection at the Calcutta School of Tropical Medicine by the authors of this paper. They cured 42·85% of out-patients and 44·4% of in-patients. At this stage Indian santonin ran out of stock and so Russian santonin was substituted with 20·5% and 66·6% of cures, respectively. It was thought that the comparatively few cures among the out-patients was probably due to their not carrying out the instructions properly. The only difference between these series of cases and that of Chopra and Chandler was that they accepted a single negative examination of the stools, by Kofoid and Barber's method, ten days after treatment, and these relied on a single negative examination the same time after treatment, but Lane's " D.C.F." method was used.

On account of relatively low rate of cure with santonin when a more exacting test of cure was employed and on account of its relatively great expense the authors decided to carry out a comparitive series of treatments using oil of chenopodium. This drug was given in three doses of ten minims each in capsules at intervals of one hour, with a purge of magnesium sulphate two hours after the last dose of oil. The percentage of cure was 56·5 among out-patients and 54.5 among in-patients. These figures bear out the statement by Hall (1930) that oil of chenopodium is the best drug against ascaris. In some cases the effect of combined treatment was tried. The dosage employed was santonin grains 5 in powder, and oil chenopodium minims 15 in a capsule, for adults, with reduced doses for children. The two drugs were swallowed together with the

assistance of a little water and were followed in two hours by a dose of magnesium sulphate 56.5% and 82.3% of cures among out-patients and in-patients respectively followed this treatment. It seems reasonable to conclude from the above results that combined santonin and oil of chenopodium is a more effiecient ascaricide than either of these drugs alone. The apperantly higher cure rate in adults compared to children is an interesting observation made by them.

Cardiac Pain.—Don C. Sutton, Chicago (Journal A.M,A., Nov. 7, 1931), studied the precardium, the myocardium, the coronary arteries and the aorta in unanesthetized dogs, with regard to the type of stimulus required to evoke the pain response and the location of nerve endings for pain. By such experiments in the dog and monkey (Macacus phenur) the following observations were made. Pricking or pinching of the parietal pericardium elicits a pain response; stretching or pulling does not. Neither mechanical nor chemical irritation of the visceral pericardium evokes a pain response. Stretching of the ventricular walls or local mechanical or chemical stimulation of the myocardium fails to produce a pain response. Temporary partial or complete closure of either a coronary artery or vein or of both invariably elicits a pain response. This is true of both the right and the left coronary arteries and their branches. This pain response was shown to be due most probably to the decreased flow of blood to the myocardium (ischemia or anoxemia). The severity of the pain varies with the amount of closure of the artery and, to a greater degree, with the size of the arterial branch constricted. The pathway of the pain response is through nerve fibers that accompany the coronary arteries and lie in the adventitia of the arteries. In the dog, the pain response from the heart passes to the central nervous system through the left sympathetic chain of ganglions. The pain pathway may be severed by destroying or narcotizing the nerve fibers in the perivascular tissue of the obstructed coronary vessel or by the removal of the stellate ganglion or of the annulus of Vieussens. Under the procaine anesthesia, a dilater may be passed through the left internal carotid artery and to the ascending aorta or further downward into the aortic ring. Stretching of either the normal aorta or the aortic ring fails to produce pain. In view of the theory that cardiac pain arises from the stretching of an acutely or chronically inflamed aorta, and in view of the possibility that inflammation may "sensitize nerve endings," experiments are now being conducted in which inflammation of the aorta is produced prior to experimental dilation or stretching. Preliminary observations indicate that pain does not rerult from stretching an injured aorta experimentally, a pain response has been observed to occur in the dog and monkey only when the blood flow to the myocardium is diminished or stopped. On the basis of his observations the author concludes that experimentally the pain response is caused by either ischemia or anoxemia. A great mass of clinicopathologic evidence further substantiates this conclusion.—*Journal of OklahomaState Medical Association.*

OBSTETRICS AND GYNAECOLOGY.

Conservative Gynaecology: Its Rationale and Its End Results. By C. Jeff Miller, M,D., New Orleans. New Orleans Medical and Surgical Journal, pp. 117-121, Vol. 84, No. 2, Aug,, 1931. Read at the sectional meeting of the American College of Surgeons, Little Rock, January, 1931.

The excellent article by Dr. Miller, could well be carefully read over and over again by anyone who treats diseases of the female genitalia.

His introduction follows:

"I have quoted many times before, and I expect to quote many times again, a wise remark of Howard Keily's, to the effect that surgery, developing in the hands of men, has dealt too lightly with mutilating operations, in women, and that if the case might be reversed for several decades, with women operating and men suffering the multilation, there would undoubtedly be a large prepossession in favor of a wise conservatism."

His comment, made many years ago, is still timely, for gynecology, in the modern phase, has "gone surgical." There is a general tendency to resort to operation without a careful consideration of simpler measures which would be quite as effective for the patient, and very much safer. There is a general tendency to remove the female sexual apparatus, in whole or in part, on promiscuous and casual indications which, in another part of the body, could only be considered trivial. There is a general tendency, since the ablation of the genitalia is not a procedure which carries an inordinately heavy risk, to disregard the fact that a woman's whole scheme of existence takes its points of departure from her pelvic organs.

"Conservatism' however, is an entirely relative term. Its implications vary in different ages. A century ago it was conservative to refrain from all surgery except such as was absolutely life-saving, and hundreds of women died from uterine and ovarian tumors which to-day the least radical of gynecologists would feel warranted in removing on the simple indication of their presence. Seventy-five years ago, when operation for such conditions had been generally accepted, it was conservative to resort to it only when the tumor was very large or the patient had suffered a good deal.

Fifty years ago it was conservative to treat uterine fibroids by oophorectomy, a procedure little short of barbarous to us of this age.

"Plainly it is a case of other times, other manners. But at that it is not always easy to define conservatism. There is no such thing as an operation which is fundamentally conservative. even though, speaking categorically, preservation of structure and function is always to be preferred to their ablation. Circumstances alter cases, and a sense of proportion is necessary, though it must be constantly borne in mind that a perfect surgical result, desirable though that be, is never the only result, for when a woman's pelvic organs are in question, function, other things being equal, deserves quite as much consideration as do mortality and morbidity,"

Dr. Miller continues by first discussing the part played by social and economic factors in management of gynecological conditions, stating that he has little patience with the surgeon who boasts that they never enter into his calculations.

The subject of pelvic infection is briefly, but sanely and rationally, reviewed. The basic principles involved may be gleaned from the following quotations:

"A woman's sexual organs are the basis on which her whole life is founded, and her sexual sanctty—I feel very strongly in this regard—should be violated only in the face of an urgent need. Which need, I might add, a single attack of salpingitis rarely constitutes.

"When once the necessity for operation has been established, however, then radicalism becomes conservatism. When the abdomen has been opened, if the disease is specific or tuberculous, then bilateral salpingectomy is the only procedure which can guarantee against its recurrence. In tubal disease, almost more than in any other pathology, the sanest surgeon, the safest gynecologist, is he who refrains longest from the practice of his art, but who, when obliged to exercise it, tempers his conservatism with sufficient radicalism to ensure for his patient a permanent cure.

"But his ruthlessness must not be extended to organs not involved in the infectious process. Routine removal of the ovaries, for instance, after either salpingectomy or hysterectomy cannot be too strongly condemned." "I am aware that the final facts are still in dispute as to the fate of conserved ovaries, but until we know more of their part in the internal economy after the menopause, we should not remove them without due cause, quite aside from the fact that excellent results from the conservative method are reported by many competent authorities."

To quote again from the text concerning hysterectomy:

"We have come very far from the surgeon who, as late as 1866, said, "I shrink and have a feeling of terror come over

me when I find myself obliged to do a hysterectomy," but it might not be altogether a bad thing if there were some such feeling of fear abroad in surgical circles today. For hysterectomy has become the most abused operation in gynecology. It is still being performed for the so-called essential uterine bleeding, though it is not warranted in one case in a hundred, since the uterus is simply responding to the evil stimulation of disfunction elsewhere. It is still being performed for uterine bleeding when the trouble is extrauterine and even extrapelvic. It is still being performed, though I grant usually unintentionally, for bleeding that has its origin in some complication of pregnancy.

"Hysterectomy is often performed very unnecessarily for uterine fibroids, for which either myomectomy or irradiation should always be first considered if the tumor does not fall into that small group of symptomless growths which need no treatment at all."

"Irradiation is another procedure which can be either conservative or radical,"

"Hysterectomy for hydatidiform mole has always been an unwarranted procedure."

The last paragraph follows:

"The conclusions of the whole matter obviously do not lie in categoric classification. The simplest procedure may be at times a very radical one, the most radical procedure may be at times true conservatism. The important consideration is that not only the immediate but the end results of every mode of treatment shall be evaluated; not only operative mortality but ultimate function; not only the patient's physical well-being but her mental and spiritual equilibrium. For gynaecologists, beyond all other physicians, hold the happiness of women in their hands quite as much as their lives and their health, and it behoves them to take earnest heed that they preserve them all alike."

This is a splendid resume of a difficult subject which must be admitted loses much of its force by omission and quotation.

It is such an important viewpoint which is distinctly fundamental in the proper practice of this series of diseases that it is well to pause and rehearse the underlying feeling of this article before definitely deciding the therapeutic measure to be applied in any gynaecological pathology.—*Journal of the Oklahoma State Medical Association.*

Dysmenorrhœa and Hypnosis.—W. Dick strongly recommends psychotherapy to the extent of psycho-analysis and hypnosis if the practitioner is competent, in cases of dysmenorrhœa. Admitting that much success often follows the use of atropine, he attributes it to a special influence exerted by the drug on the vagus. But

specific treatments such as the much-praised Fliess intra-nasal method, he is convinced, are only unusual forms of hypnosis. Dick gives details of six patients whose dysmenorrhœa was cured satisfactorily by psychic means, and this in spite of the fact that in at least one of the women, anteflexion was present and in another a stenosed cervix. (*Berlin: Archiv fur Gynakologie*).—*Medical World.*

Toxemias of Pregnancy.—W. J. Dieckmann (*American Journal of Obstetrics and Gynecology*, 22: 351, September, 1931) notes that in his experience concentration of the blood is the most consistent finding in eclampsia and pre-eclamptic toxemia; relief of this condition usually results in improvement in the clinical symptoms. The most important part of the author's treatment of eclampsia and pre-eclamptic toxemia at the St. Louis Maternity Hospital, has been the injection of glucose solution intravenously; in many cases following such an injection the dilution of the blood would be satisfactorily maintained and the toxemia relieved. In certain cases, however, the dilution of the blood could not be maintained, even after delivery, and the eclamptic convulsions would recur. The explanation, the author believes, is, that the serum proteins are changed in some way so that they do not hold water. For this reason gum acacia solution was used for intravenous injection in certain cases of eclampsia and severe pre-eclamptic toxemia not responding to other methods of treatment. Due to its colloidal properties this solution remains in the blood and holds water, thus increasing blood volume and decreasing viscosity with resulting improvement of the circulation of the tissues and organs. Practically, this treatment proved very effective in relieving symptoms within a few hours. On the basis of his experience, the author recommends the use of 500 to 1,000 c.c. of a 6 per cent. gum acacia solution in eclampsia and severe pre-eclamptic toxemia.

R. D. Eussay of the Mayo Clinic (*Minnesota Medicine*, 14:889, October, 1931) states that he has observed 97 cases of toxemia in the later months of pregnancy in 2,906 deliveries, an incidence of 3.3 per cent. There were 10 cases with eclampsia, 80 cases with pre-eclamptic toxemia and 7 with nephritis prior to pregnancy. Thirty-five of these 97 patients were observed through at least one subsequent pregnancy; of those 2 had pre-existing chronic nephritis; 14 did not develop toxemia in subsequent pregnancies! but 19 of the 33 patients with toxemia in the first pregnancy without chronic nephritis, developed toxemia in a subsequent pregnancy. Four of these had no evidence of persisting arterial or renal injury; 7 showed suggestive but not conclusive evidence of chronic nephritis; 8 patients, none of whom had shown any evidence of nephritis prior to the first pregnancy, showed definite evidence of chronic nephritis of a more or less

severe grade following pregnancy with toxemia. These findings indicate that after a pregnancy in which toxemia has occured, the incidence of recurrent toxemia is high in subequent pregnancies. Such recurrent toxemia is probably due to the same factor or factors as the original attack and may effect: 1. Patients who have entirely recovered from the initial attack. 2. Patients who have undetected residual renal or arterial injury subsequent to the first attack, 3. Patients with definite chronic nephritis which existed before or developed subsequent to the initial attack.—*The Medical Times and Long Island Medical Journal.*

Comparison of Pregnancy Tests.—M. R. White and A. O. Severance (*Journal of the American Medical Association*, 97:1275, Oct. 31, 1931) report a comparison of the Ascheim-Zondek test with the two modifications of this test proposed by Brouha and Friedman, the former using immature male mice and the latter mature female rabbits (non-pregnant) as the test animals. Studies were also made of the pupillary reaction of Bercovitz and the serum reaction of Manoilov in some cases. In 191 Ascheim-Zondek tests there were 20 instances in which the results did not agree with the final diagnosis; there were 5 false positives in 69 non-pregnant controls; and 14 negative reactions in 29 tests on cases of ectopic pregnancy and incomplete abortion; in only one case of normal pregnancy was the reaction negative. The Brouha reaction was positive in all of 60 cases of normal pregnancy, 10 cases of ectopic pregnancy and 9 cases of incomplete abortion; there were 10 false positive reactions in 27 non-pregnant women. The false positive reactions with the Ascheim-Zondek and Brouha tests were evidently due to some endocrine disturbance. The Friedman test gave correct results in all but one of 14 cases of normal pregnancy and in all of 18 non-pregnant patients; in the one case of pregnancy the test was negative on the thirty-second day after the last menstruation. It was this test that gave 2 negative and 2 positive reactions in 4 cases of ectopic pregnancy and 3 positive reactions in 4 cases of incomplete abortion. From this study, the authors find that the Aschenn-Zondek test was of value as a diagnostic procedure in 51 per cent. of cases of ectopic pregnancy and incomplete abortion, the Friedman test in 62 per cent. of these cases. The Brouha reaction was correct in all, but the time required for the test limits its practical value as a diagnostic aid in these cases of suspected normal pregnancy the Brouha reaction has definite advantages over the Ascheim-Zondek test; the Friedman test also has certain advantages over the Ascheim-Zonduk method. All these tests depend on a quantitative change in the amount of active principle excreted in the urine, which is believed to be anterior pituitary hormone. The serum test of Manoilov and the

pupillary reaction of Bercovitv were found to be of little value as diagnostic aids.—*The Medical Times and Long Island Medical Journal.*

Trichomonas Vaginitis in Pregnancy:—P. B. Bland and his associates at the Jefferson Medical College, Philadelphia, Pa., (*Surgery, Gynaecology and Obstetrics*, 53:759, December, 1931) report a special study of trichomonas vaginitis in pregnancy. Smears were made routinely before the thirty-sixth week of pregnancy from the vaginal secretion of all patients visiting the ante-natal clinic of the Hospital. Trichimonads were found in 136, or 22.7 per cent., of the 600 women examined, the incidence of the infection being higher in Negro women (30.8 per cent.) than in white woman (13.3 per cent.). Only 18, or 13.2 per cent., of the patients showing trichimonads in the vaginal secretion, voluntarily complained of local discomfort; on questioning, however, many others admitted the presence of an annoying discharge. The vaginal secretion was definitely altered in all being creamy, yellow, seropurulent, and often "frothy or foamy." Several patients noted pruritus and chafing. In those that showed a frank vaginitis (13 per cent.). the appearance of the vagina resembled that of an acute gonorrheal vaginitis, except for the foaming character of the discharge. In 250 women who were delivered at the Hospital, 62 (or 24.8 per cent.) had shown trichomonads in the vaginal secretion during pregnancy and had not been treated; of these 27, or nearly 50 per cent., showed puerperal morbidity, while only 19.6 per cent. of those without trichomonas infection showed any morbidity in the puerperium. The authors conclude that trichomonads are definitely pathogenic in the female vagina, and that they may be an etiological factor in puerperal morbidity. A study of the comparative morphology of trichomonads from the mouth, intestine and the vagina indicates that the intestine is not the source of *Trichomonas vaginalis.—The Medical Times and Long Island Medical Journal.*

Cervical Cesarean Section.—J. P. Greenhill (*Surgery, Gynecology and Obstetrics*. 53:547, October, 1931) reports that at the Chicago Lying-In Hospital 874 conservative cervical Cesarean sections and 21 additional laparotrachelotomies with amputation of the uterus were done up to July 1, 1929; the total maternal mortality was 1.23 per cent. and the total fetal mortality was 4.6 per cent. Up to July 1, 1930, the author himself had done 108 conservative and 9 radical cervical Cesarean sections, without a maternal death and with 5 fetal deaths, 4.3 per cent. The chief indication for the operation was cephalopelvic disproportion, in 47 per cent.; other indications were pervious Cesarean section with test of labor, 86 per-

cent.; previous Cesarean section without test of labor, 12.8 per cent.; toxemia, 7.7 per cent.; placenta prævia, 6 per cent.; abruptio placentæ, 4.3 per cent. Only 57.3 per cent. of the patients were in labor when Cesarean section was done. Nearly all patients with contracted pelvis were given a test of labor. Direct infiltration anesthesia alone was used in 64·1 per cent. of all the cases. A temperature of 100 degrees or above was noticed in 58, or 49·6 per cent. of cases; in half of these the cause for the elevation of temperature could not be determined; for those cases in which the etiology was known, the most frequent cause was infected wound in 9.6 per cent. There were 5 fetal deaths in the series, but in 3 cases the death occurred before operation was done. In most cases the wounds of cervical Cesarean section heal well, as shown by microscopic study of specimens of scar tissue removed at repeated operations.—*The Medical Times and Long Island Medical Journal.*

Role of Female Sex Hormone:—According to Robert T. Frank, New York (*Journal A. M. A.*, Dec. 19, 1931), the female organism, from the neonatal age to the menopause, and perhaps beyond this critical period, is under the influence of the pre-pituitary hormone and the female sex hormone. After puberty, it is affected at intervals by the progestational hormone. He summarizes these various endocrine influences thus: The anterior lobe hormone stimulates the ovary to produce follicles. The folice in turn elaborates the female sex hormone, which reaches the tubular tract, (tubes, uterus, vagina) by means of the blood stream. The tubular tract, after sufficient blood concentration has been reached, then undergoes the early premenstrual change. Following ovulation, the corpus luteum develops. This transitory gland continues to produce female sex hormone as well as a special hormone, whose presence in the circulation has not yet been demonstrated, enhancing the local uterine and breast changes necessary for the nidation and early nutrition of the fertilized ovum. Among these changes, sensitization of the uterine mucosa, requiste for successful embedding, is particularly important. If the corpus luteum is removed at this early stage, the ovum fails to secure the necessary firm hold in the endometirium and abortion results. The chorion epithelium, later developing into the placenta, an important gland of internal secretion, takes up the production of both female sex hormone and prepituitary hormone. Probably as a safety factor the circulation is flooded with these two internal secretory products to such a degree that an enormous amount is excreted through the kidneys and bowel throughtout pregnancy.

Radiopelvimetry.—In his recent review of the work of the Rotunda Hospital Dr. Bethel Solomons remarked that he believed the best results in pelvimetry were to be obtained by radiographic methods. Experiments along these lines were made in the very early days of radiology but were abandoned when the dangers of X-rays became apparent, and gynaecologists have only recently found courage to resume them. At the present time there is no danger to mother or child. The technique employed does not vary very much, and is modelled on that devised by H. Thomas. The essential requirements are to place the patient in such a position that the brim of the pelvis is horizontal above the film, to obtain a clear radiogram of the pelvic brim, and to correct the measurements on the film for the distortion resulting from the projection of the skeleton by diverging rays on the flat surface. Dr. L. A. Rowden describes a procedure that should offer no difficulty to any radiologist who wants to adopt it. The crucial point in all variations of the method is the correction of the distortion of the shadow, and this is performed by almost every worker with some variety of what Dr. Rowden calls a "pubic scale". As part of his equipment the Radiologist prepares a series of radiograms of a flat strip of lead through which have been punched a series of holes exactly half an inch (or one centimetre) apart; successive films are exposed with this "Ruler" suspended in a horizontal plane at a series of distances above the Potter Bucky diaphragm corresponding with the possible range of height of the symphysis pubis—in Dr. Rowden's practice at intervals of a quarter of an inch from 4¾ in. to 6 in. The ruler is long enough to span the bony shadow, and it is obvious that, since its image is distorted in exact correspondence with the image of the pelvis, it is an accurate scale by which to measure the latter. Other workers use a steel strip with notches at each eighth of an inch, supported on the patient's thighs during the exposure, and a refinement used by Dr. H. J. Walton is a chart made up from readings taken with his "false centimetre scale" at various heights.

In every variety of technique the patient is placed seated at the end of a table on the Potter-Bucky diaphragm, with her back supported by a rest inclined at an angle of about 55°. Dr. Rowden advocates the use of a motor-driven Sectogrid diaphragm and places the patient with the centre of her pelvis above the central ball-bearing of the appliance; Dr. Walton is content with a Potter-Bucky of the ordinary type. Dr. Rowden demands a tube-film distance of not less than 4 ft. 6 in.; the greater accuracy secured by the use of this distance must be paid for in the correspondingly greater load which it is necessary to put on the tube. He finds it necessary to expose the posterior portion of the pelvis twice as long (or more) again as the anterior portion, which he shades off during the second part of the exposure with an implement which he terms a "hatchet"—a sandwich of lead between two pieces of three-ply wood mounted on a handle, in shape something like a wooden fives-bat with a large bite taken out of the far end. Dr. Walton, possibly because he is content with a 30-inch tube-film distance, does not consider this double exposure necessary, nor does he use a plumb-line. Dr. Rowden's radiograms show the shadow due to the ball-bearing of the Sectogrid diaphragm and representing of course, the normal central ray; its position may possibly serve as a guide to the amount of uncompensated distortion at the edges of the film. After the exposure, the height of the top of the symphysis is measured; Dr. Walton takes the height to the film, but Dr. Rowden takes it to the diaphragm, fearing to introduce extra errors. Dr. Rowden claims to be able to measure this distance to within a quarter of an inch with callipers. The public scale corresponding to the measured height is attached to the film, and the measurements taken against it with callipers. Dr. Julius Jarcho, another American worker, verifies the position of the inlet by measuring the distance between the spine of the fifth lumbar vertebra (marked with an adhesive rab) and the film, and the distance between the top of the symphyhsis and the film; the latter measurement is obtained by means of a plumb-bob attached to a support near the tube. After the patient has been radiographed, a second exposure is made on the same film through a thin lead plate punched full of small holes at intervals of exactly one centimetre, held on an adjustable stand in the same position as the plane of the inlet occupied before. Dr. Jarcho recommends an increase in the exposure corresponding to the degree of obesity of the patient and the amount of hydramnios. He also lays stress on the value of lateral pelvimetry for detecting disproportion between the foetus and the outlet.

From the theoretical point of view, of course, these methods are open to the objection that the pelvic opening is not all in one plane. Moreover, unless the brim is quite parallel to the plate, a considerable error may creep in from the inclination of the true conjugate to the horizontal. Dr. A. Orley, in discussing Dr. Rowden's paper when it was delivered pointed this out, and also that, as the transverse and antero-posterior diameters of the pelvis lie in different planes, they cannot be measured by a single projection. He measures the heights of the sop of the symphysis and of the spine of the fourth lumbar vertebra (not the fifth, as in Dr. Jarcho's method), and the height of the postero-superiorpine of the ilium; having radiographed the patient he superimposes two images of a perforated lead plate, one in the plane of the antero-posterior diameter and the other in that of the transverse diameter, the lead plate being turned through a right angle for the second exposure.

Measurements made by these methods are widely regarded as more accurate than the result of any clinical estimation. When, however, radiography is applied to the measurements of the foetal cranium there is room for some doubt, although if the radiographic examination is made within a fortnight of term the relative size of head and brim can be relatively gauged. Dr. Rowden gauges the size of the head by its probably distance above the brim, and Dr. Walton makes two exposures at right angles, in the antero-posterior and lateral positions, centring on the head as located by manual or radiographic examination, a method which is open to question as errors must produce distortion. Dr. Jarcho's use of adhesive marks and the pelvimeter sounds as though it should locate the centre of the head with as much percision as any other method. The obvious difficulty is always that small errors are easily magnified. Nevertheless, it is probable that radiology will be increasingly used for pelvic measurement, and also for the diagnosis of multiple pregnancy, monstrosity, and foetal death, inwhich it has already shown its value. Under favourable condition a positive diagnosis of pregnancy can be made radiographically from the third month.

Book Reviews.

Psychology in General Nursing.—By Isabel G. H. Wilson M. D. D. P. M. [Edward Arnold & Co. 41 & 43. Maddox St., London W. 1.] 5 sh.

This book is based on the lectures delivered to nurses at the Tavistock Square clinic for functional nervous diseases. It is eminently a practical hand book and contains references to the author's practical experience in Psychological medicine. As it is intended for general nurses as distinguished from "mental" nurses it deals with the psychological implications of physical illness.

The fundamental principles of modern psychology are dealt with in a lucid style keeping clear of controversial matters. Every phase of the nurse's activity has been touched upon and the corresponding psychological aspect is explained.

Some points are perhaps too tersely dealt with to be easily understood by a nurse who has no previous acquaintance with psychology.

For acquiring a grasp of the first principles the book could be recommended to others who are not nurses.

The case reports make instructive reading—*F. N.*

The Titanium Alloy Arc: its Uses in Therapeutics.—By W. Annandale Troup. (M. C.), M.B., Ch. B. 1931 Pp. 18 illustrated The Actinic Press. Ltd., 17, Featherstone Building, London Wc. 1, Price Sh. 1/-

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In this interesting booklet, the author has explained clearly the value of ultra violet radiations with the titanium alloy arc lamps. He is of opinion, that the initial heat given out by these arcs due to the presence of infra-red radiation, helps the absorption of ultra violet radiation quicker than with other colder sources of rays, (mercury vapour). "Every patient treated by the titanium alloy expresses pleasure at the comfortable warmth produced; and those who have had treatment from the carbon arc—tingstin arc, and other sources, much prefer it as a sedative and as an agent to promote the general body circulation."

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A few reports of the author's cases treated with the titanium alloy arc are included, which add greatly to the value of the suggestions contained in the book. All physicians interested in the Ultra-violet Radiation therapy will find it an useful addition to their book-shelves.—*V. C. S.*

A Challenge to Neurasthenia.—By Doris Mary Armitage. Second Edition. Revised and enlarged. 1931. Cloth Price, 2s. 6d. Pp. 64: [London: William and Norgate Ltd. 38 Great St. Armond St.]

Dr. L. S. Barnes, of Whitewell, Herts, must have been very successful in treating persons suffering from neurasthenia, for it is said that "his fame spread far afield and that people came not only from different parts of this country, but from half across Europe to seek his help". Miss Armitage who suffered from this distressing malady, had the good fortune to be cured under the guidance of the forceful personality of Dr. Barnes. And as a grateful patient, desirous to help others suffering from this malady, she has undertaken to unfold her late physician's method of treatment in this short essay, which is written in a pleasing literary style, at once simple, lucid and forceful. .....Not troubling much with the complicated theories of modern schools of psychopathology Dr. Barnes resorted to the method which is best described as "applied common sense" and with great sympathy and understanding of human nature, he guided his patients to cure themselves by conquering *fear* and gaining mastery over the deceitful subconscious mind. He asked his patients: Why be the miserable slave, when you can be the happy master?

We have no hesitation in saying that this little book will be of great practical help to many a neurasthenic person who cares to cure himself by following Dr. Barnes' simple instructions. Many

physicians also would like to give this book to their patients suffering from " nerves " or from definite psychaesthenia.—*N. B.*

Surgical Pathology of the Diseases of Bones.—By Arthur E. Hertzler, M. D. 1931. Pp. 272 with 211 illustrations' [Philadelphia ; J. B. Lippincott. Company]. Price 21 sh.

This book is the outcome of some thirty years, of medical teaching, and contains the results of the author's own experience gained entirely from his own patients.

The subject matter has been dealt with under three broad headings—Pathogenesis, including the development of disease, Pathology, and histology.

The book is amply illustrated and each picture tells a story with much clarity and vividness. At the end of each section a list of references bearing on the subject is added which an interested reader may use for further study. The book is practical, and being the outcome of personal experience of the author, is sure to be found useful by medical men and students.—*V. C. S.*

Diagnostic Methods and Interpretations in Internal Medicine.—By Samuel A. Loewenberg, M. D., F. A. C. P. Second Edition. Pp. 1032. Illustrations 547. [F. A. Davis Company, Philadelphia.] Price $ 10·00 net.

The book is written from the stand-point of a general practitioner, and all branches of medicine are dealt with, but no attempt is made on specialisation. It covers diagnostic methods in internal medicine and contains in detail the descriptions of various methods of examining the patient, clinically or otherwise, and how to distinguish the normal from the pathological conditions. Physical signs and symptoms of different diseases are enumerated at great length and how to arrive at a diagnosis from those data is discussed from the view-points of the medical student, the general practitioner and the specialist. The Respiratory, the Cardiac, and the Gastro-intestinal systems claim a large portion of the book. Under Thorax, tophographic and regional anatomy are described and examination of the Respiratory system is discussed very minutely. Differential diagnosis of the diseases of the chest and breast is also dealt with. Under cardio-vascular system examination of the patient, diseases of the cardiovascular system (physical signs and diagnosis), electrocardiography and tests for cardiac capacity are elaborately discussed. It also contains informations on other systems of the body sufficient for a general practitioner, without being detailed and exhaustive. One chapter is devoted to each of the following: Radiography, Laboratory diagnosis and Physical examinations as applied to industry.

This second edition has been extensively revised and many additions are made to keep it abreast with the modern progress. The important feature of this book is the innumerable illustrations which greatly add to the value of the book. The book is very clear and simple, at the same time very exhaustive. The book also contains the methods of maintaining special history and physical examination, record forms and an useful index. We are confident that the book is sure to maintain the popularity it has already gained with medical students and general practitioners.—*K. L. R.*

Birth Registration and Birth Statistics in Canada.—By R. K. Kuczynski. [The Brookings Institution, Washington,] 1930, Price $ 3.00.

The Brookings Institution was founded in December 1927 to devote to public service through research and training in the humanistic sciences, and even in this short period it has functioned, it has already got to its credit several important publications, and to our author himself two publications.—" The Balance between Births and Deaths," and this book which is really to be regarded as a bye-product of a series of studies by him on fecundity. The first mentioned book received considerable notice in all parts of the world, and both statistics and methodology merited close scrutiny. It had prepared the way to expect of this author a source book complete with documentation and official reports of the kind now under review. The main account of this book has been however very precisely summarised in the announcement itself, and for a brief review like this in a medical journal the reproduction of this is sufficient: "Canada is the only country in the world that has had a continuous series of birth records for three centuries. The statistics reveal—at least in French Canada—the highest fecundity that has ever been observed in any country, though there is tendency to show a decrease in recent years. The fecundity of the British Canadian women is about as low as in most other countries of the western civilization. But in this part of the country birth registration is not yet satisfactorily effected although vigourous efforts are still being made to secure the same ". The results of the 1931 decennial census are expected to afford further material for erudite and scientific treatment by the author.—*K. B. M.*

" The Anopheline larvae of the countries from India and the orient to the Antipodes."—By C. Strickland and K. L. Chowdhury. [Thacker Spink & Co. P. B. 54, Calcutta] Re. 1/12.

Within the last quarter of a century, medical entomology has progressed very rapidly; and the pace with which it continues to

progress, is really staggering. Already, it has become a special science; and promises to resolve itself into several special sub-branches, each of which alone may require a man's lifetime, to study it fully. On going through the prefatory note of this supplement, one cannot fail to be struck by the fact that a book written on the Anophelines of a particular part of the world, this year, might easily become "out of date", next year. What a marvellous progress since the days when Sir Ronald Ross had to hunt for a dapple winged mosquito, to this day when hundreds of species of anophelines, can be identified while they are yet in their larval stage.

Five or six years ago, the Malarialogist in India, had to breed all his catches of anopheles larvae into adults, and then identify their species. This naturally entailed considerable delays in the carrying out of effective anti-mosquito measures, which have to be based on the principle of "Species control," if they are to be economically and scientifically carried out. The great economic importance of "Species control," is becoming clearly recognised by Malarialogists all over the world, as is evident from their efforts to improve their knowledge of anopheline ecology. "Species control," which has for its aim the dealing with the carrier species of anophelines only, to the exclusion of all the non-carrier species, can succeed, only if medical entomology comes to its aid. By the publication of Dr. Strickland and Chowdhury's original book on the Anopheline larva of India, Burma, Ceylon and Malaya, considerable help was given to the malarialogist in this country, in his efforts to adopt "species control" as an effective antimalarial measure. Scarcely four years have passed since the original book was published in 1927; and now, a further supplement to the original book has had to be published so as to bring the original book uptodate.

A brief but clear description of the chief characteristics by which the species of an anopheline larva could be determined, is given in tabular form, and to facilitate quick reference, the appropriate diagram in the apposed plate showing the characteristics described, is also indicated by a distinguishing letter or letters. Where a further reference to the original book is necessary to correctly determine the species, the pages of the original book which have to be consulted, are mentioned, on the top of the tables, which, needless to say, considerably lightens up the labour of the users of this supplement. The illustrations are all sufficiently descriptive and are well executed. The printing and getup of this supplement, leaves nothing to be desired. This supplement is a *sine-qua-non* to all those who wish to undertake serious antimalarial work anywhere in India and the orient. To the medical entomologist, this supplement is as essential as the original book of Drs. Strickland and Chowdhry.—*G. R. R.*

"Leprosy—Summary of Recent work No. 23." The B. E. L. R. Association, 29, Dorset Sq. London N. W. 1.

As its very title indicates, this is a periodical containing summaries of all original articles on leprosy, published in the important medical journals of the world. The summaries and reviews of all articles on leprosy, published in the *Tropical Diseases Bulletin*, are collected and reprinted from time to time and issued in the form of a booklet, and the present one under review is the 23rd of such booklets published so far. Needless to say that this publication is a *sine-qua-non* to the wholetime workers in leprosy. No individual worker in leprosy can ever afford to subscribe to all the important medical journals of the world, and even if he can afford it, he will have no time even to go through them all and granting that he has time to peruse them all the question of language raises a stumbling block, unless he happens to be a specially gifted multi-linguist. The extreme importance therefore, of a publication giving authenticated abstracts and summaries of all the original articles on leprosy, published in the different languages of Europe and Asia, cannot be overestimated. The debt of gratitude, which all the active wholetime workers in leprosy owe to the B.E.L.R.A., who kindly finance the publication of this periodical, is increased tenfold, when it is seen that it is sent absolutely gratis to all active workers in leprosy. There is no valid reason now, why an active worker in leprosy cannot keep his knowledge uptodate, when the means of achieving this, is literally knocking at his door.

The present number contains summaries of the report of the Leonardwood Memorial Conference on leprosy held in Manila, and *Leprosy Review* April 1931 number; and abstracts of important papers dealing with the distribution of leprosy in the South African Union, in the Gold Coast and in Siam, and of papers dealing with the different aspects of Pathology, Bacteriology, and Treatment of leprosy.

To the isolated English-knowing wholetime worker in leprosy, living in any remote corner of the world, this is a God-send.—*G.R. Rao.*

"On the Road to Health" [India Red Cross Society Hd. Qrs. New Delhi.]

This pamphlet of 67 pages is the I. R C. series No. 32, and is a reprint of the synopsis of three lectures drawn by the Public Health Department of the Punjab, namely, 1. Character building of the child, 2. Laws of health for the expectant mother 3. Laws of health for the adult. The remarks, demonstration, and exhibit of each

point of the lectures are very well arranged and without much of expenses, they could easily be arranged even in a remote village. These will be of very great help to the welfare workers, especially during the baby week celebrations. The first lecture, namely, character building of the child is intended to lay the foundation of character in respect of punctuality, regularity, clean living, usefulness, tidiness, self-reliance, independence, obedience and self-control. The present day busy parents bestow very little attention to the character building of their children. Consequently, the reaction among the children when they grow up is something very terrible and baffles every one who has to handle the youth of the country. We wish every Welfare Society will conduct regular classes among the mothers of their areas and teach them how to build the character of their children on the lines suggested in this synopsis. The other two lectures also are of equal importance considering the ignorance and indifference among the expectant mothers and the average man and woman in simple matters governing the hygiene of pregnancy and health. The pregnancy and motherhood are natural functions and yet due to superstition, ignorance and in some cases due to indifference, the mortality and morbidity among mothers are on the increase. The laws of health governing the hygiene of pregnancy should be explained to every pregnant mother in India. We are sure, those who are devoted to this great national work will find this pamphlet of very great help. Every girls' school teacher should be supplied with a copy and should be asked to teach the girls these simple lessons, as we believe, that they will be effective propagandists among their families in the cause of health.—*Dr. Mrs. Anna Thomas.*

Annual Report, of the Institute for Medical Research at Kuala-Lumpur, Federated Malay States for the year 1930.

Very valuable research work in Tropical Diseases is carried out year by year, in this Institute; and the annual reports of this Institute are therefore always interesting; and the present one is no exception to the rule. Dr. A. Neave Kingsbury and his staff, are to be congratulated on a year's very valuable research work carried out in the field of Tropical medicine. The Director justly complains, in his introductory note, of the enormous extent of routine laboratory work impeding progress in research work; and the reviewer thinks, it is a complaint against which every Research Institute in India seeks redress. Unfortunately, Medical Research work does not and cannot be made to show any striking change in the balance sheet of a Finance member; and the case of the medical research worker therefore, fares badly at the hands of the lay administrator.

Three pieces of research work are singled out for special mention, by the Director, in his introductory note. The prophylactic value of a vaccine for Typhus, the successful experiments to determine the infectivity of the local carrier species of Anophelines to monkey malarial parasites, and the experiments designed to assess the comparative diagnostic values of "H" and "O" aggluetinins in the diagnosis of Enteric group of fevers from Typhus and Leptospirosis, are the three items of research work that are considered to be of outstanding value from the point of view of their practical application in the field of Tropical Medicine.

Of the first 52 pages, which deal with the Research work carried out at the Institute during the year under report, the report on Typhus Research work, takes the main bulk. The Director take the opportunity afforded him, by this report, to analyse all the research work done on this disease, so far, in the Institute, since it was first begun by Dr. Fletcher the previous Director, and this analysis provides an excellent epitome of all the previous bulletins concerning Typhus Research, published by the Institute.

Two different antigenic strains of B-protens X 19 designated as K (Kingsbury) and W (Warsaw) seem to have been isolated in Malaya, the former chiefly from Typhus cases occuring in the rural areas (e.g.) oilpalm estates; and the latter from Typhus cases occuring in Urban areas. The urban type of Typhus therefore seems to correspond to the European Typhus, and the rural, to the so-called Tropical Typhus.

Animal inoculations with the two different strains of B protens X19 showed the comparatively milder character of the Tropical Typhus to experimental animals, Haemorrhagic lesions of the testis and tunica vaginalis were found to be a characteristic pathological finding in 6% of the inoculated guinea pigs.

Serological experiments with guineapigs and rats, using both K and W strains of the B-protens X19 showed that in the Tropics at any rate, serological variations in the strains of Typhus Virus may occur as a result of passage through a different animal. This naturally raises the very important question of possible reservoirs of infection, other than human carriers. Examinations of 200 rats captured with a view to find out if the disease occured naturally amongst them, showed that 4·5% of them had testicular lesions similar to those obtained in experimentally inoculated guineapigs. And 11%, of the 130 rats captured from an oil palm estate where Typhus is endemic, gave a positive Weil-felix reaction. Five strains of a B-protens serologically related to X19 were isolated from the rats examined. These results unmistakably point to the highly probable occurrence of Tropical Typhus, as a natural infection in Malayan

rats. Rats therefore may be important reservoirs of infection to be reckoned with, in any preventive campaign against the disease.

Detailed reports on the Bacteriological investigations into the disease follow. All forms of the organism whether Coccoids, coccobacilli, diphtheroids or fusiform bacilli, were all Gram-negative. The minute coccal forms of the organism which correspond to the classical " Rickettsia " type, were found to be highly virulent both to laboratory animals and to human volunteers. This raises the interesting question whether, after all, these coccoid forms may not represent the most resistant phase of the organism.

The technique of preparing the prophylactic vaccine for Tropical Typhus and the nature of the strains of the organism used are briefly described. The results of inoculation with the vaccine prepared in accordance with the directions given by Dr. Anigstein, proved to be very encouraging.

Attempts to detect the insect vector of Tropical Typhus have so far not yielded the expected results. Certain experiments with the body and head lice yielded positive results, but, in view of the very restricted migratory habits of these insects, no definite conclusion can be drawn in respect of the part they play in the transmission of the disease. The possibility of a mite being the vector has not escaped attention. But, no attention seems to have been given to the possibility of a Tick being the vector. The Epidemiological observations concerning Tropical Typhus as it occurs in Malaya, reported on, in the previous annual report of this Institute do not negative the possibility and that a Tick might be a vector under certain conditions. Or as pointed out by Col. (now Major-General) Megaw I.M.S., Tick, mite, and louse may all be the vectors in certain circumstances.

MALARIA.

As suggested by the reviewer in his review of the annual report for 1929 of the same Institute, field experiments on the prophylactic value of Plasmoquine, have been carried out during the year under report; and it is rather regrettable that such a valuable experiment should have been seriously handicapped by the conditions prevailing in the rubber world. Even after leaving a broad margin for all the unavoidable handicaps which seriously affected the results of the experiment, a reduction in the parasite rate of from 28 per cent. to 17 per cent. in a period of nine months, is something substantial which cannot but help to prove the value of Plasmoquine in the prophylaxis of malaria.

As for the effect of Plasmoquine on the viability of the gametocytes of Plasmodium falci parum, experiments showed that after each 0·04 grm. dose of Plasmoquine the gametocyte carrier remained uninfective to the carrier species of anophelines for a period of at least 3 days. This shows the distinct gametocyticidal effect of Plasmoquine.

Another experiment designed to study the influence of Palsmoquine on the development of gametocytes of P. falciparum showed that while Plasmoquine could not prevent the fully matured crescents from appearing in the peripheral blood, it did effectively destroy the immature ones.

Quinine administration in cases of Subtertian Malaria was found to have no appreciable effect on the production of gametocytes. Quinine-stovarsol has been very favourably reported on, especially by workers in the French colonies. Naturally it was considered worth while to study the effects of this preparation in cases of malaria. No appreciable difference was found between Quinine and Quinine-stovarsol; and the advantage, if any, was found to be on the side of plain quinine. All the extravagant claims advanced on its behalf, could not therefore be substantiated. A slight reduction in the size of the enlarged spleen, with a slight rise in the R. B. C, count and Haemoglobin Index, were noticed after the administration of Quinine-stovarsol, but the same results could be obtained by a Quinine et Iron cum Arsenic mixture. Therefore there does not appear to be any special advantage in using Quinine-stovarsol.

A monkey malarial parasite very closely resembling the human benign tertian malarial parasite, was found to be capable of undergoing full development in the stomachs of A kochi and A vagus. The Oocysts and sporozoites of this parasite, were practically indistinguishable from those of the human parasite; and in view of the fact that Anopheline carriers of human parasites act as carriers of the monkey parasites also, the significance of Sporozoite rate and Oocyst rate in areas with a considerable monkey population has to be taken at a discount. It would be interesting indeed to estimate the incidence of monkey Malaria in India and to study how far monkeys are responsible for human malaria in areas where both are known to suffer from malaria. A fertile field for research has now been opened by the very interesting and important experiments in monkey malaria, reported on by Dr. R. Green, and these experiments also show that in the case of the malarial parasites at least, animal reservoirs like monkeys may play an important part in the causation of the human disease.

A. maculatus, the chief carrier species of malaria, and A. Vagus, were found to breed in rice fields and the nature of the manure used seemed to have no effect on the Anopheline breeding.

Waters containing iron in appreciable quantities, were found to prevent the breeding of anopheline larvae.

Full details of 2 cases of Japanese River Fever in two European planters, are given and from the serological results noted one will have no difficulty in agreeing with the views of Major General Megaw, that Typhus fever wherever it occurs and by whatever name it is called, represents only a single clinical entity and that slight deviations in the course or symptoms and signs of the disease that are described by workers from different countries are only modifications incidental to, and conditioned by the geographical position of the countries, the racial customs of the

inhabitants and certain other Biological factors. For instance, Typhus Fever is known by the following names :– Rockey mountain spotted fever or European Typhus or Typhus exanthematicus, or Tick Typhus; Tropical Typhus or louse Typhus, Japanese River fever or mite Typhus (Tsutgugamushi disease) etc., etc. As suggested by Major-Genaral Megaw it would be more rational to speak of—"Typhus group of Fevers"; and to designate each member of the group by the insect vector that is responsible. Thus we may have four different members of the Typhus group, –(*viz.*,) Tick Typhus, Louse Typhus, Mite Typhus and Typhus of unknown vector.

Anemia of Pregnancy.

Certain investigations into the etiology of anemia of pregnancy showed that the disease was infrequent in Malaya; and that such cases of pregnancy who had profound anemia, were found to have a secondary type of anemia caused by Helminthic infection, syphilis, malaria, malnutrition, or dietetic deficiencies, any one or two of these factors acting in combination. Malaya seems to be rather more fortunate in this respect than India, where anemia of pregnancy is a problem, at least in some provinces.

Beri-Beri.

A method of preparing a solid extract of the rice polishings, by absorption acid clay, has been devised, and the extract so prepared has been tried in cases of avian polyneuritis (Pigeons). An experimental trial of the extract in human cases showed that it was of greater value as a prophylatic than as a curative. A highly concentrated syrup from extracts of rice polishings, has also been prepared for use in children under 6 years of age, who cannot take the solid extract. Further experience alone can decide, if these preparations have any curative value or not.

Burning Feet.

Sixteen cases suffering from this peculiar complaint were treated with eggs, marmite and iron with arsenic tonic, and they all recovered. Two of these cases had a positive Wassermann and so were treated with organic arsenicals also. Possibly, most of these cases were of some deficiency disease or of Hepatic insufficiency.

The Widal reaction—"H" and "O" agglutinins.

The specific diagnostic value of "O" agglutinins in differentiating the Enteric group of fevers from other closely simulating febrile diseases, is becoming increasingly manifest, as further experience of the Widal test with "O" emulsions of B typhosus, is gained, and as measures taken to ensure a close co-operation between the clinician and the laboratory worker bear fruit. A definite evidence of the non-existence of enteric group of fevers was found to be the absence of the "O" agglutinins in the sera tested. And this finding could not have been arrived at without the closest co-operation between the clinician and the laboratory worker. An early appearance of the "O" agglutinins in the sera tested, before the appearance of the "H" agglutinins enabled a very early and precise diagnosis of enteric being made. Herein lies the specific diagnostic value of the "Widal Test" with the "O" emulsions of B. typhosus.

In sera showing "H" agglutinins to a dilution of 1 in 250 or over, reduced titre "O" readings of 10 or over confirmed the diagnosis of enteric, and this shows the importance of carrying out the widal using both the "H" & "O" emulsions of B. typhosus.

In previously inoculated persons the B. typhosus "O" reduced titre does not generally appear to exceed five and an exception to this rule has been noted in a case which showed an initial "O" reduced titre of 12, subsequently rising to 40 with very high "H" readings. A tentative diagnosis of enteric was made on the strength of the widal readings in this case. The patient died, and the laboratory diagnosis was confirmed at the Postmortem examination. Further enquiries into the history of the case elicited the fact that he had been inoculated in the latter part of the incubation period.

In 68 cases of Tropical Typhus with positive Weilfelix reactions, 22 showed the presence of "H" agglutinins for B. typhosus Para A, B or C in dilutions below 1/250 and seven cases showed "H" agglutinins even in increasing dilutions. In 6 more cases, a rise of "H" agglutinins to a titre of 1 in 5000, was rather very perplexing, but the insignificant "O" readings helped to rule out the "Enteric group" of fevers.

Bacteriological Findings in Local Waters.

Investigations into the bacteriology of local waters showed that roughly 30% of the Lactose-fermenting organisms met with, were of intestinal origin. This evidently shows the level of "sanitary conscience" of the general mass of polulation in the "States". It would be rather interesting to know how India compares with the F. M. S. in this respect.

Investigations of Lymph.

Exposure to room temperature and preservation in the ordinary household ice-chest were found to adversely affect the potency of the diluted lymph. The addition of small quantities of glucose, to lymph appeared to cause a definite increase in potency, although it could not prevent deterioration of the lymph when exposed to room temperatur ɔ

The results of prophylatic inoculation of dogs are said to have been so very encouraging as to justify the continuance of the measure from year to year. The experimental inoculations of dogs carried out in the town of Kualalumpur in three consecutive years, have given exceedingly valuable results and here, is a valuable lesson to our veterinary authorities and the Public Health administrators. The practical value of the trite saying "Prevention is bett[illegible] can be better realised by following the lead given [illegible] Veterinary Officials and the Research Institute. Will the Indian Veterinary Officials follow the lead? One wishes [illegible] had done so.

Sectional reports from the different divisions follow and finally a list of the visitors to the Institute and a list of the Bulletins issued and papers published complete the report. This report should be in the hands of every Research worker in Tropical Medicine.—*G. R. Rao.*

Preparations and Inventions.

Kepseal Ferri-Cuprum

Manufactured by Messrs. Parke Davis & Co., Detroit U.S.A :—

These have been made available to the profession with the object of providing a superior preparation of iron and copper for the treatment of secondary anæmias, and the relationship of the two metals as found in this product is in accord with the best experimental evidence as to the proper proportion between iron and copper salts.

Ferri Cuprum contains in each Kapseal:—

Iron Citrate.....5 grs.
Copper Nucleate .....0.3 gr.

Iron has long been considered to be of first importance in secondary anæmias but laboratory investigations by Steenbock and Hart of the University of Wisconsin, U. S. A., have shown that in experimentally produced anæmias in animals the anti-anæmic activity in iron salts is materially enhanced by furnishing with it minute quantities of copper. It is interesting to note in this connection that most, if not all, of the iron salts commonly used for therapeutic purposes contain small quantities of copper as impurities.

Kapseals Ferri-Cuprum are being used extensively in those cases in which the hæmoglobin is extremely low in comparison with the red cell count. This is the type of anæmia commonly referred to as the chlorotic or hypochromic variety. If rapid red blood-cell regeneration is also desired it is recommended that Liver Extract or Ventriculin (Stomach-Tissue Extract, P., D. & Co.) be administered simultaneously.

The pharmaceutical form in which Ferri-Cuprum is offered deserves special comment. A Kapseal is a *sealed* gelatin capsule which affords the very definite advantages of protecting the product from exposure to air or moisture.

In the ordinary capsule the two parts—the cap and the body—are joined by merely telescoping the cap over the body, and the only assurance of a good closure is in the snugness of the fit. Air might get in: moisture might get in: the two parts might even become disengaged with resulting loss of the contents of the capsule. In a Kapseal there is no guesswork about the closure. An annular, hermetic, gelatin seal joins the edge of the cap to the body so that the cap, body, and seal are fused to each other into one integral air-tight container.

Peptalac :—*Manufactured by Cow & Gate Ltd.* Predigested foods have long been recognised by the Medical and Nursing professions as valuable aids in sick room dietary where the digestive system has been debilitated by systemic disease, and specially in gastro-intestinal cases, and conditions of dyspepsia.

In these cases the nutrition of the patient is of paramount importance, and it is usually necessary to afford relief to weakened

digestive functions by predigesting foods outside the body previous to ingestion, by extracts of the appropriate peptic and pancreatic (sweetbread) ferments. The peptonisation of milk alone formerly commonly practised is now dropping out in favour of the more efficient process of pancreatisation, which not only predigests the proteins, but also converts strach into sugar. As usually carried out at home, however, it is ineffective, the "rule of thumb" directions, though involving much tedious attention, are not sufficiently precise to secure the necessary essentials of constant temperature (100°F.) and alkaline reaction, for the efficient conversion of the proteins and starch of the foods used. Under these home conditions of preparation the predigestion—if any—stops short of finality, so that the food is rendered unpalatable by the presence of the intermediate products of the partial digestion.

The most recent advance in pancreatisation is the production of a wheat and full cream Milk Food in which the delicate operation of predigestion is carried out under optimum conditions at the Factory before packing. This preparation is known as Peptalac and is marketed by Cow & Gate Ltd., the well known manufacturers of Roller Dried Milk Powders.

Peptalac is a mixture of wheat and full cream milk, and is pancreatised under skilled supervision, securing the maximum of predigestion possible under optimum conditions, being subsequently powdered by the Improved Cow & Gate Roller process of drying, and only requires the addition of hot water for preparation.

No milk is required for its reconstitution. It is thus economical in use and can be mixed ready for the patient in a minute.

A most important consideration is palatability and in this respect peptalac stands pre-eminent. The fats remain neutral and the bitter intermediate products are absent.

The composition of Peptalac is as follows :—

Moisture	...	3·0%
Fat	...	22·5%
Proteins (Peptones and Amino Acids)	...	8·0%
Lactose	...	31·0%
Converted and other Carbohydrates	...	10·0%
Mineral Matter	...	6·5%
		100·0%
Caloric value per ounce	...	138·5

The predigestion effected totals about 30%.

It is obvious that the advent of this preparation places within the reach of all a predigested food of precision, extraordinarily convenient to prepare, requiring no skilled supervision, and relieves the lay home nurse of all anxiety while saving the time and trouble which hitherto have had to be expended on most present day products sold for this purpose with no guarantee of securing tangible results.

Peptalac in common with all predigested foods is not of course curative. but it solves the problem of nutrition, the crux upon which so often the ultimate recovery depends. In all acute diseases, pneumonia, gastro-intestinal conditions such as ulceration and colitis, dyspepsia—pancreatic insufficiency—convalescence, and in old age—this precise subsidisation of natural digestion is invaluable.

An important distinctive feature of Peptalac is the presence of amino acids, the ultimate form in which the proteins of our food are absorbed by the blood. The special Cow and Gate process of pancreatisation carries part of the protein beyond the half way stage of peptone to the end amino acid products, ready for early absorption in the upper intestinal tract, thus affording substantial relief to a weakened or inefficient digestive system.

The preparation of predigested foods need no longer present any difficulty or anxiety in home nursing. By the use of Peptalac the operation is reduced to simplicity with the certainty of successful results.

In Hospitals and Nursing Homes much economy of time is effected, thus freeing the nurses for more important duties.

Notice.

Messrs. N. Powell & Co. Ltd., Manfg. Chemists, Bombay.

We are glad to announce that the business of Messrs. N. Powell & Co., which was upto now a Proprietary concern, has been converted into a Private Limited one. This will undoubtedly enable the management to further the scope of their present activities and make the concern more popular. In this connection, it may be usefully recalled that this institution was started as far back as 1886.

Dr. Nair, the founder of this firm, had then a huge practice in his profession, when he conceived an idea of opening a small shop. An humble beginning was made by keeping some drugs and manufacturing a few patent medicines. Later on, the firm carried on some import and export business in the same line, on a moderate scale. In 1899, they opened a small workshop for repairing Surgical Instruments and also manufacturing Orthopaedic Appliances and Artificial Limbs. At the same time, they started manufacturing a few pharmaceutical preparations, such as Tinctures, Liquors, Liniments, Ointments &c. and also a few Proprietory preparations. In this line, they made rapid progress, so that in a couple of years, the small workshop was replaced by a factory. By dint of efficient work they won the confidence of their constituents.

In 1905. the firm was able to obtain the first contract of about Rs. 10,000 for manufacturing Aseptic Hospital Furniture for the J. J. Hospital, Bombay. Success in this regard gave them an impetus for manufacturing Surgical Instruments also on a large scale. In a very short time, they received orders from all over India for making Aseptic Hospital Furniture.

In 1909, they secured a substantial order of Rs. 50,000 from the Government of Bombay for equipping various Hospitals and Dispensaries in the Presidency. His Majesty, the Amir of Afganistan also placed with this firm a large order for Surgical Instruments, Pharmaceutical Preparations, & Furniture.

The old place at Duncon Road was found insufficient for such an ever increasing volume of business and therefore, a large plot of and was purchased on which a huge building to accommodate all their Departments was built at the junction of Sandhurst and Lamington Roads, in the year 1913. At present, their offices and all the Selling Departments are located in this building. After a few years they had to shift even the Factory from the old place. In the year 1918, they bought another extensive plot of land near Club Road and built separate buildings for the Pharmaceutical works and Surgical works and also erected several godowns. After about six years even the new buildings were found inadequate for their works which were rapidly developing and therefore, in the year 1924 they erected a huge fire-proof concrete building with three stories on typical modern plan. In the building, they have accommodated their surgical works and Pharmaceutical works, which are equipped with the latest plant and machinery. Their Laboratory is unique in India and it is under the supervision of highly qualified chemists.

In India, where industry is pre-eminently backward, it is undoubtedly very difficult to carry it out on a large scale, especially because the Pioneer of an industry is required to depend on no other place or person but solely on himself for various articles for constructing it right from top to bottom. In the West, however, there are all facilities in the way, since manufacturers can secure whatever parts or fittings, they require for their products from next door neighbours, without trouble. Messrs. N. Powell & Co. by this time, though single-handed, have reached the stage where they have been able after a good deal of toil to manufacture everything required in their enormous Factory which will be found to be up-to-date and unique in India.

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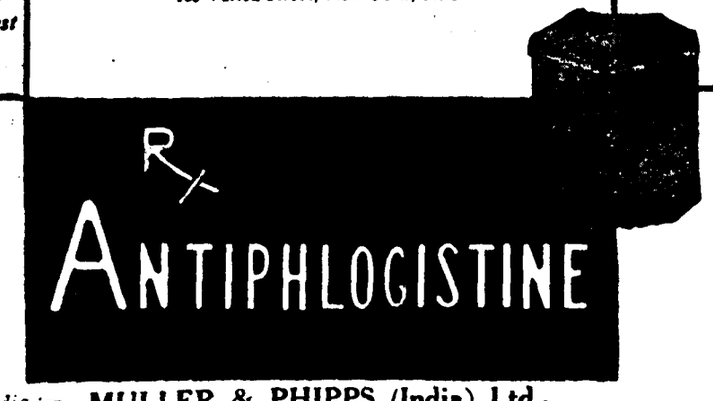

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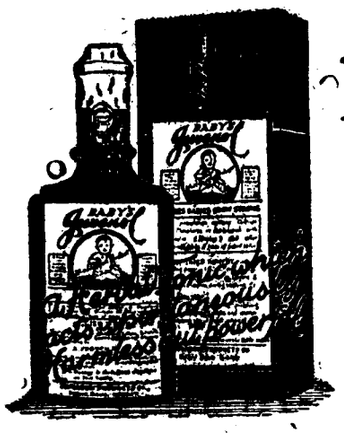

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correcting chronic constipation. Purgatives and hydragogues, aperients and laxatives, cathartics and cholagogues exist in abundance, but the irritant action that they exercise over the intestines and production of antibodies which they promote, prevent their usefulness. Unless we display divine discontent with existing imperfections and pursue with patience the heterodoxy in the body politic we can never progress. This article may appear egotistical and some people may even question my statement of chronic constipation being in some way connected with all chronic diseases and the success of my mode of treatment, but the record of scores of cases treated successfully, explanation of modus operandi based on basic principles of physiological action, and finally their own experience of my method are my answers to these critics.

It is no exaggeration if I state that chronic constipation is in someway connected with all chronic diseases. In the past we have focussed our vision in the field of the microbe—the seed—and now is the time to change it to the direction of soil and fortify the latter in such a way that the former may not flourish. This is preventive medicine. How often we use the word 'low resistance' in the causation of disease? And what does it mean except a system under the influence of auto-intoxication or defective drainage? How closely is colon connected with the stomach and if stasis occurs in the latter is it not easy for the microbes to march in full swing from this cesspool into the gastric dining room almost adjacent? These walking cesspools are more dangerous than street cesspools and it is indeed a matter of regret that whereas we array an armament against inscriptions in medicine we forget the fundamental, which conduces towards these epigrams—the word labelled diseases.

For proper treatment of constipation, a full knowledge of "Keith's block system" in the intestines is important. Just as on the railway line when one block hoists a signal of alarm it affects all the blocks on the line, so it is in the intestines. Thus it is that previously unexplainable facts like troubles in the appendix region simulating a gastric ulcer for instance, have now been fully understood. It is not my intention to go into these blocks here, for which I refer my readers to text book, but what I want to stress is, that the knowledge of these blocks should be our guiding factor in exhibiting medicines for cure of constipation. Next to it we should be fully conversant with the selective action of drugs on different segments of the intestinal canal. We know that calomel, podophyllin and euonymin chiefly affect the duodenum, sodi and mag. sulph exhibit their action most in the ilium, colocynth acts best in the large colon, aloes in the rectum, whereas jalap, cascara and senna pods stimulate multiple areas. Dr. J. V. Fiddan states[2] that nearly all stasis occurs either in rectum or in cæcum. But these conclusions as pointed out by

A. C. Jordan[3] are based on "prepared cases". X ray observations carried out under less artificial conditions show that in stasis the delay is spread out over the entire large intestine and it is usual to find the transverse colon still well filled with Bismuth after 48, 72 or more hours, while rectum may or may not be full. X ray and barium meal therefore offer an aid which should be availed of every time as it gives us most useful information for which our forebearers in medicine had to plough often in vain.

Intestine is a child of nature, subject to a habit. The civilized man partly in quest of the yellow metal and partly in obedience to convention has neglected the most primary duty of punctuality in paying homage to cloacinæ in comfort and leisure. Irregularity and ignorance end in an insensitivity which makes the rectum heedless to an ordinary stimulus of the presence of latria. Hurst calls this variety of constipation by the name of dyschesia and as I have explained above it is due to defective functioning of the rectal reflex. Normally rectal reflex is initiated by the increase of pressure within the rectum, produced by the entry of fæcal matter from the pelvic colon. If this reflex be controlled by will, the rectum becomes used to accommodating that much quantity of fæces without producing evacuation. It is important therefore not to neglect the call of nature and fix an hour for same. Inculcate the habit of visiting the latrine at a fixed hour and if bowels don't move in the beginning never mind. Perseverance with this habit will ultimately bring about the desired effect. Present day physicians including Hurst and Alvarez consider dyschesia quite a separate entity and responsible for good many cases of constipation. Administration of purgatives to such patients dislocates the whole coplex of intestinal digestion and absorption, in order to fill the rectum with the larger masses of fæces and raise the pressure to the threshold of stimulation. The harmful effect of irritative aperients which interfere with rhythm of the bowel, setting up inhibitions and spasms, upsetting the normal nerve muscle mechanism, fatiguing the postural tone and allowing dilatation and relaxation of colon has been stressed by Spriggs[4] (Quart: Jour: Med: July 1931). The rectum should normally be empty except during the act of defæcation, but in constipated persons it always contains some fæces[5]. (L. B. pp. 112). Rational treatment in such cases would appear to be enema, which I formerly use to prescribe periodically. Now I have relegated that in favour of the recipe tabulated below, for reasons which I shall discuss presently It has been argued by J. V. Fiddan that since fæces when they reach the rectum are rendered non-toxic by process of dehydration in the large intestine, and rectum possesses no power of absorption, why dyschesia which is the cause of majority of cases of constipation, be responsible for ills attributed to chronic constipation and be not

compatible with perfect health. This is an amazing statement, for if water can be absorbed why should not the soluble poisons dissolved therein be absorbed as well? Taking for granted the above contention of dyschesia being compatible with perfect health from point of view of absorption of toxins, no one will deny that dyschesia is at least the root cause of hæmorrhoids, rectal fistulas, and anal fissures. And these conditions can affect the health in various ways. The leakage of the nervous energy which is the moving factor for the motors in various organs of body including the digestive tract, lowers its resistance and makes it permeable to the toxins evolved within. The local pain of anal fissure aggravates dyschesia by causing insufficient evacuation—a vicious circle hardly compatible with perfect health, while bleeding from hæmorrhoids is an obvious loss which makes any man a chronic invalid. Finally rectal stasis leads to stasis above. Before I put down my recipe in detail I shall discuss the principles on which it is based.

In cases of chronic constipation faeces remain in the intestines for quite a long time and become quiescent. Their disturbance usually sets free toxins. Hence the chief object to be kept in view in treating such case is:—(1) Overcome stasis. (2) Neutrilize toxins. To achieve these objects the drug or the combination of drugs should have the following properties.

i. It should be a moderate laxative so that its use can be extended for some time till the intestines learn to act independently.

ii. It should have the lubricating property—oiling the mucosa and the mass, thereby facilitating the passage of faeces without irritating the intestines.

iii. It should have the property of inhibiting the absorption of poisonous materials, evolving from the disturbance of the quiescent fæces, by blocking the mouths of intestinal glands in the large intestines.

iv. It should dissolve the liquid and gasseous toxins and carry them off so that the protective powers against the toxic invasion are reinforced.

v. It is a popular conception that stasis in the large intestine is responsible for the ills attributed to auto-intoxication. But the study of Prof: Keith's works and Sir William Arbuthnot Lane's book on "Chronic intestinal stasis shows that the site of stasis is often in the small intestine. Alfred. C. Jordan[3] says: "Normally the contents of the lower ileum are nearly sterile, while the large intestine harbours microbes, which are friendly, as they aid digestion and assimilation by breaking down the cellulose walls of the vegetable cells taken as food. In stasis these microbes cease to be friendly and invade the stagnant contents of the ileum. Other microbes foreign to the healthy bowels (streptococci etc.), join the invadin army and

convert the lower ileal coils into a veritable cauldron from which the poisons are poured into the system with deadly effect on every tissue of body." As such the drug should have selective action on the ileum.

vi. The drug should have the most important property of not causing after constipation. After constipation is due to fatigue of Keith's motors which depends upon over-stimulation of the musculature. The drug and dose chosen should be such that it should just stimulate to produce the physiological action and no more.

vii. Another important requirement of an ideal purgative should be of not possessing the property of evoking 'neutralizing antibodies', because these nullify the action of the drug so that it ceases to act after sometime and the dose has to be increased to obtain the physiological action i.e. movement of the bowels. This is the reason why some people become immune to the action of strong cathartics even in large doses when they have been taking them habitually.

viii. It should flush out the faecal and other back waters.

It will be seen that liquid paraffin fulfills the first four conditions. There are two points in connection with it which require to be noted. Firstly it is not absorbed and passes out of the gut unchanged. It is likely to soil the linen without the patient knowing anything. It is important therefore to make the patient cognizant of this fact. Secondly as I have said above liquid paraffin is a stong solvent of liquid and gasseous toxins. It is also a solvent for other drugs like thymol which is likely to be prescribed on account of its antiseptic properties. If this point is not remembered, it is likely to cause symptoms of poisoning. Langdon Brown says:[6] 'Besides the ordinary measures for the relief of constipation, special mention must be made of liquid paraffin which has lately acquired such a vogue in the treatment of constipation. Not being absorbed, it increases the bulk of faeces and really does facilitate the onward progress of the intestinal contents". The last four conditions are fulfilled by Mag: Sulph. Its action by osmosis, attracting fluids in the intestines thereby affording a stimulus to its action and flushing out the back waters are well known but its selective action on the ileum, its non-irritating property and not evoking the neutrilizing antibodies are little known.

The recipe is as follows:—

1st Week:

i. First thing in the morning one tea-spoon of Mag. sulph in half a tumbler of tepid water.

ii. Liquid paraffin half an ounce, ½ hour after mid-day meal.

iii. Repeat no i. in the evening.

iv. Repeat no. ii after night meal.

2nd Week:

i. Omit no. iii. continue no. i, ii and iv.

3rd Week:

i. Omit no. i. as well, continue only ii. and iv.

4th Week:

i. Omit all except no. iv.

5th: *Week*:

Omit all. Continue to attend the call of nature at the fixed hour and the intestines continue to act.

The period of one week has been fixed as an average. The object aimed at is to obtain two to three movements of bowels daily. If bowels move more frequently the period of one week is shortened and the course of second week started earlier. Per contra if bowels be more stubborn and don't move as often, the period of one week is extended, till the object aimed at is acheived and then the course of second week is started. After the completion of whole course bowels get so used to the regime of regularly emptying, that they continue to act at the prescribed hour. I usually advise the patients to inculcate habit of drinking few draughts of plain water before the appointed hour of the call of nature on empty stomach. This water on reaching stomach stimulates reflexly the lowest motor of Keith's system and brings about the act of defaecation. Hurst has called this Gastro colix reflex. It is a remarkable phenomenon of the large intestines and was first observed by Holznecht, later studied by Hurst and Barkley. Both the small and large intestines show segmentation and pendulum movements, while the peristaltic movement though evident in the large colon upto spleenic flexture, is replaced by a new form of movement called the " mass movement" in which a mass of contents is forced through a considerable length of the large intestine. This mass movement is often set up when fresh food enters the stomach.[7] If the patient drinks water and walks about anticipating the movement of bowels it brings about the desired effect. There is one other factor to which I want to draw attention before conclusion. This factor is of importance in developing abdominal muscles in order to secure sufficient support for internal organs to prevent their ptosis. This factor of late has been occupying greater attention and it is only fair that it received careful consideration. Abdominal pool, splanchnic lake, abdominal venocity are synonyms which originate in relaxed condition of abdominal muscles. What is the best way of maintaining tone of these muscles? Their regular use. The form of exercise to which

my attention was drawn by Dr. Leonard Williams—an exercise which is best yet not difficult, nor violent nor time consuming is the one which I have always recommended. The patient lies on his back on the floor with his feet under the opened lowest drawer, of a chest of drawers to keep them from rising from the ground, and arms crossed on the chest. Keeping his knees unbent, he pulls himself in a sitting posture by aid of his abdominal muscles. To begin with he does two or three times in the morning and increases it till he is able to do it seven times. Then he modifies the excercise a little by keeping his arms fully extended above the head touching the floor in the whole length, and pulls the trunk forward. Beginning with 2—3 times he slowly increases till he can do it seven times. If done regularly it keeps the abdominal muscles in tone and prevents ptosis which is supposed to be one cause of stasis. Hand in hand with these exercises I recommend abdominal and spinal massage with olive oil for one hour daily, and Curtis's abdominal support, in cases of visceroptosis. Abdominal exercise should be done clockwise. Commencing below xiphisternum and going down to right iliac region then right up, to below the chest wall, across the abdomen above the umbilicus, and finally down on left to the pelvis. Spinal massage is done with the middle and index fingers on either side of the spines from above downwards.

I shall close by mentioning some convincing cases (non-organic in origin) cured of constipation by treatment on the above lines.

Case 1. An English girl of 18 years, who had connected the act of defaecation with something un-natural and unclean procedure and reluctantly visited the closet once a week, was consigned to my care while I was working as staff surgeon in the station. Her earthy, oily pasty and anaemic face was an outward indication of the inner cesspool. In this case of faeces seem to have remained in the intestine for sufficiently long time to become quiescent and their disturbance was likely to set free toxins. The experience of neutralizing powers of liquid paraffin led me put her on my course of liquid paraffin and mag: sulph: treatment, without adding any other antiseptic. She made a complete recovery and her bowels got into the habit of moving regularly once a day.

Case 2. Middle aged lady who was suffering from severe attacks of headache every fortnight lasting 24—48 hours. She had chronic constipation. The above treatment cured her constipation, along with it her headache of 20 years duration. She has had no relapse during the last 10 years.

Case 3. A lad of 17 years suffering from clouding of mental capabilities and chronic constipation was brought to me by his mother. His memory had become dull and he was suffering from general malaise. The boy stated that his bowels moved once a

week. The above course made his bowels move regularly once a day, and made him feel better mentally and physically.

Case 4. Suffering from Gastric syphilis, Wassermann positive and received two courses of Sulfarsenol and 15 cc of Bismostab, had very obstinate constipation. The above course has cured him of the trouble of constipation and improved his out-look on life.

Case 5. A lady aged 30 years, a chronic sufferer from constipation and who benifitted from the above course 10 years ago, developed troublesome Puerperal instetinal atony. Enema with Pituitrin injection alone could move her bowels for first six days, and then glycerine enema for two months. Abdominal and Spinal massage with abdominal support combined with the above treatment, made the bowels move automatically. This lady tried to replace liquid paraffin by two palatable preparations on the market viz. Petrolagar and Agarol. Former was a complete failure, while the latter only a partial success.

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IODINE AS AN INTERNAL REMEDY.*

BY

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The virtues of iodine were appreciated long before iodine itself was known. The ancient Chinese made frequent uses of iodine-containing sponges for the treatment of goitre ; the Greeks in classical times used certain species of sea-sponge to wash infected wounds and in Rome the medical profession used water-cress seed for the contraction of the spleen, as a provocative of the menses, for the augmentation of the libido and even for the destruction of the fœtus in the body of the mother.

Iodine was first administered in the form of marine plants such as torrefied sponges and was used chiefly in disorders of the lymphoid tissue. The element itself was discovered in a rather curious way.

* Specially contributed to the "Antiseptic."

In the early part of the last century, the rapid development of military enterprise in France made essential the manufacture of large quantities of gunpowder, and it was soon found difficult to obtain adequate supplies of saltpetre, which was produced in the environs of Paris.

The method of manufacture was rather complicated, and consisted in collecting calcium nitrate from the nitre beds and allowing it to stand in copper vats. This calcium nitrate was decomposed and converted into saltpetre by the addition of an extract made from seaweed, or kelp. (Employed by one of the most prominent of these manufactures was one Bernard Courtois, who owned a large factory on the outskirts of Paris). He was anxious to improve his yield and at the same time to avoid loss of time and money occurring through the destruction of the copper vats, for it had been noted that after a relatively short time, the copper linings of the vats became discolored and finally eaten away.

This corrosion occured only after the addition of the extract of kelp, and Courtois felt that it would be worth while to investigate the problem. He began to fractionate the seaweed extract, and finally proved that the substance responsible for this corrosion was a peculiar metal-like substance which gave off a beautiful violet color. Because of the "wonderful color of its vapor" this substance was named iodine. This momentous discovery took place in 1811.

Iodine was introduced into medicine by Coindet in 1820, and Magendie did much to make this new element popular. For years its use was merely as an external agent in disinfecting wounds and Davaine the French surgeon proclaimed iodine far and wide to be "the substance antiseptic par excellence." It was, however through a curious accident that the virtues of iodine as an internal remedy was discovered. Trousseau, one of the greatest French clinicians who ever lived was making the rounds in his wards and prescribing for the various patients under his care. One of these was a case of severe exophthalmic goitre. Trousseau was a great advocate for the use of tincture of digitalis for this condition, but on this occasion, in a moment of abstraction had written "Tincture of Iodine" instead of "Tincture of Digitalis."

When Trousseau was making his rounds again some ten days later he was much astonished at the remarkable improvement that his exophthalmic goitre patient had made. Never in his experience had what he believed he prescribed, tincture of digitalis, accomplished so much. He re-examined his original written orders for this case, and found that he had written "tincture of iodine" instead of his

much beloved "tincture of digitalis." An error had been made, but a very fortunate one, and iodine as an internal remedy began to attract attention from physicians throughout the world.

Being a constitutive element of the blood and of organic cells, iodine is met with in the form of organic combinations. To Bauman is due the discovery of this element in the thyroid gland, the function of which is now known and partially consists as a center of concentrating this element. As Bouvet has shown, it is in some degree, the directing agent of iodine which spreads through most of the organism passing into the blood in the form of nucleoproteins, in variably, though at all events infinitely small doses. Generally speaking, all the organs of ectodermic origin: skin, hair, nails, etc., contain certain amounts of iodine, either as one of their constitutive elements, or on the other hand, as serving to eliminate it.

For many years it has been believed that beneficial therapeutic action of sea air is due to a constant volatilization of iodine by seaweeds. Recalling the experiments of Veytieres, where the workers in an iodine factory nearly all escaped influenza during the 1917-1918 epidemic, the effect of iodine vapor in certain schools, as a preventive, has been tried. In one class room iodine vapor from a watery solution of iodine and KI was diffused once or twice a day, and in another no such vaporization was used. In the first room hardly any influenza occurred, while there were several cases in the other room. The solution contained one part of iodine with two parts of KI and 300 parts of distilled water. It was also used as an inhalation, adding 50 cc of water, in a steam kettle.

One of the earliest uses to which iodine as an internal remedy was put to was in pulmonary tuberculosis. It was Loumos who in his ten years service as a medical officer in the Greek army, was particularly impressed with the frequent association of varying degrees of hyperthyroidism in the presence of pulmonary tuberculosis. As a result he was forced to assume that there may be some intimate relationship between thyroid dysfunction and tuberculosis. He reported quite favorable results in a series of cases of pulmonary tuberculosis treated with tincture of iodine in small doses by mouth. Iodine was given in decreasing doses over a prolonged period of time; metallic iodine in the form of the tincture of iodine in doses varying from 5 to 15 centigrams per 24 hours over a period of from 20 to 30 days was given. After an interruption of 15 days the iodine administration was resumed for another 20 to 30 days. When the patient improved in his general condition, the amount administered was diminished until the activity became quiescent and the patient did not present fever or local findings in the lungs while the general condition improved greatly.

Ritter (1) for many years has been giving tincture of iodine in pulmonary tuberculosis, in small doses in the mild cases and in enormous doses in more advanced cases. He has never witnessed any untoward results. He has been giving tincture of iodine as a routine in milk or some other palatable drink, the regime being 10 to 20 drops in milk three or four times a day, each day for two or three months. This is then discontinued for a month or so, and the dosage is then repeated. No harm can come from the use of iodine internally in the treatment of pulmonary tuberculosis, and some of its advocates believe that it does exert some benefit in this disease.

In other diseases of the lungs iodine in various forms has been used with good results. Krishnamurty (2) during the years 1925-1926 tried intravenous injections of iodine in a series of lung ailments, among which were cases of sero-fibrinous pleurisy and intractable bronchitis. The results on the whole were satisfactory. After a single injection in one of the patients with sero-fibrinous pleurisy the pleural friction rub disappeared and the patient was much more comfortable. In the cases of chronic bronchitis two injections on alternate days brought down the temperature and cleared up the lungs. Krishnamurty used a mixture consisting of iodine, one dram, KI, one dram, distilled water, 2 drams. The dosage varied from 10 minims to 40 minims.

Within more recent years iodine combined with various oils, such as rapeseed or poppy oil has been used in the treatment of lung affections. Jones and Jamison have injected iodised oil into the bronchi for the treatment of lung abscess, bronchiectasis and chronic bronchitis (3). This treatment, they found, proved of distinct benefit. Ballon and Ballon (4) also reported injections of iodine in oil into the bronchi to be of value in bronchiectasis, lessening cough and expectoration. Ransohoff and Helman (5) found that empyema cavities treated by injections of iodine in an oil medium healed rapidly.

In the treatment of pneumonias Murphy (6) has tried intravenous injections of iodine in colloidal form. He found that the most striking feature when his pneumonia patients were given iodine by vein was an early abatement of toxemia. Primary cases, even when coming under delayed treatment, responded far more rapidly and satisfactorily, as did likewise cases of recurrence. In some of these, even when of great severity; improvement was appreciable to the patient and those around him within a matter of a few hours, and general immunity appeared to have been established in many instances within twelve to thirty hours. Murphy found that iodine given by mouth in such cases exerts little or no influence, but it does help to intensify the action of iodine given by the intravenous route. Of course, the iodine was not the only treatment given.

A 2% solution of 10 cc of colloidal iodine was given intravenously every two days.

Although bubonic plague has been abolished from most quarters of the globe, in certain parts of India, particularly the northern province this disease is still a problem. Bharadwaj (7) reports good results obtained by the intravenous injection of an iodine mixture consisting of 18 grains of iodine with 36 grains of KI in 4 ounces of normal saline solution. This was injected in 5 to 10 cc doses every day for four consecutive days. This would give about ¾ to 1½ grains of pure iodine and of 1½ to 3 grains of KI per day. Bharadwaj roports that in his opinion intravenous injections of iodine is the best treatment for bubonic plague. In his series early cases were very easily controlled and 3 to 5 injections of 5 to 10 cc of the iodine solution were sufficent to effect a cure.

Many remedial measures have been employed for the treatment of chronic rhinitis with nasal hypersecretion. Iodine here has proved of distinct value at the hands of Sternberg (8). His series consisted of 25 cases of chronic rhinitis with nasal hyper secretion and the remedy employed consisted of subcutaneous injections of I cc of a 5% sodium iodide solution containing traces of free iodine which were given from I to 3 times at varying intervals.

He noted that there was a slight change in the secretion and an improvement of subjective symptoms such as headaches and difficulty in breathing. A slight swelling of the nasal mucous membrane was also noted. On the other hand, decidedly favorable results were obtained in typical vasomotor rhinitis. These patients had suffered for months or years from coryza with a severe watery secretion from the nose, frequent fits of sneezing, obstructed breathing, headache and anæmia. Objective examination of the nose revealed a pale, pasty swelling of the mucous membrane with hypertrophy in a few cases. The nasal disturbances improved noticeably a few hours after injection. The secretion decreased or ceased, the swelling disappeared, relieving the respiratory difficulties, the headache disappeared and the sense of smell returned in one case. The duration of the improvement noted after one injection varied. In some cases it lasted 3 months while in others a second injection was necessary after a day or two. Only two cases proved entirely refractory.

Iodine as an internal remedy has been used for some time in cases of arthritis. Krishnamurty (2) in his series of 108 cases in which he used iodine intravenously had some nineteen cases of rheumatoid arthritis, chronic synovitis and gonorrhoeal rheumatism. Of these he claims a cure for one case with appreciable relief obtained in the others. Sicard (9) found that local injections of iodine in poppy-seed oil improved rheumatic pains. Introduction of 5 to 10 cc into the painful region afforded relief. This same clinician also obtained

excellent results in lumbago, sciatica, arthritis and peri-articular affections.

Sicard and Forestier (10) also report the use of iodized oil injections in various painful syndromes, including arthritis, synovitis, lumbago, sciatica and painful amputation stumps. In arthritis injections were sometimes made into the joints or around the joints; and in some cases with multiple joint involvement, intramuscularly. In synovitis, the injections were usually given into the tendon sheath; in lumbago, into the muscles in some cases; in sciatica, around the nerve trunk. In painful amputation stumps, the injections were made around the cicatrix so as to come in contact with the bones and also into the cicatricial neuroma under local anesthesia. Sicard, Haguenau and Wallich (II) also report the treatment of amputation stumps by deep local injections of iodized oil. One or two injections were given weekly under local anæsthesia with a total dosage of 30 to 50 cc. Of eight patients treated, four were entirely relieved and three improved.

Handel (12) advocates the treatment of painful amputation stumps by injections of iodine in oil in the region of the scar, so as to come in contact with the bone and also into the neuroma. Of nine patients treated, five were completely relieved and three much improved. Salavert (13) reported the treatment of eight cases of lumbago by injections of iodized oil into the affected muscles. Three or four injections of 2 cc each were given at ten to fifteen days intervals. Of the eight patients treated, five were completely relieved and the other three improved.

Iodine when introduced into the human body gives rise to certain well defined reactions. For instance, iodine is credited by Matinet and others with being a lymphogogue. The lymph becoming richer in salts than normally, owing to the addition of those from the blood, extracts water from the surrounding tissues or pathological exudates. This extra fluid tiien re-enters the blood stream carrying with it waste material worked from the tissues, which material is soon eliminated through the enunctiories. Another effect of iodine having to do with the lymphatic system is that of markedly stimulating lymphoid tissue in general as well as mucous membrance, the result being a pronounced increase in the production of lymphocytes.

Injections of preparations of iodine set up a fugitive hypoleucocytosis followed by a durable hyperleucocytosis with mononucleosis. It would therefore from its power of bringing about mononucleosis that iodine is a great factor in bringing about immunization. Iodine dissolves in the cytoplasm of the leucocytes and its presence can no-

longer be demonstrated by the usual tests. The iodophily of the leucocytes is a proof that iodine is a specific drug in diseases of the lymphoid tissues.

Pouchet was the first to demonstrate the antitoxic properties of iodine. Experiments by Roux, Marti, Kitasati and Lortat-Jacob go to show that the most active toxins *in vitro* and *in vivo* can be attenuated not merely by mixing the iodine with the toxins but by introducing them separately into the organism. The attenuation may be ascribed to the defensive reactions set up in the organism by the introduction of iodine. This property of attenuation of iodine was made use of by Ranque and Senez in the preparation of bacterial vaccines. Laumonier satisfied himself as to the rise of the opsonic index under the influence of iodine while Fiessinger showed that it determined and increased the zymasic and phagocytic powers of the white corpuscles.

It has been shown by Villemin that iodine *in vitro* hindered the development of cultures of tubercle bacilli. The bacilli break up and lose their acid resistance. Galette has shown that iodine mobilizes the leucocytes in the form of a mononucleosis. These leucocytes secrete a lipase, the anti-bacillary action of which is not open to question. There is such thing as a "lipase mordant," a sensitization of the bacillus to the leucocytic ferment which, with the assistance of iodine, seems to act on the fatty and waxy constituent of the tubercle bacillus.

The most recent work by Vasdremer proves conclusively that the tubercle bacillus is closely allied to the actinomyces and the latter, as we know, are extremely sensitive to iodine treatment. The tubercle is avascular but the pronounced diffusibilty of iodine compensates this drawback. Many observers have shown that tuberculous tissues fix iodine. Iodine, by combining with the fatty acids, neutralizes the hindering action of these acids, whence the possibility of autolysis.

Among the most important properties of iodine is its ability to resolve all hypertrophies of the lymphoid organs, ganglions and tonsils, adenoid vegetations, fibromata, tabes mesenterica, etc., in which iodotherapy should always precede, accompany and follow surgical intervention. Iodine lessens the plasticity of tissues and prevents the genesis of tumors which many agree are nothing more than exudates in the course of organization. Iodine constitues a powerful remedy of the scrofula-tuberculosis diathesis both in the initial scrofula of the skin (lupus) and in the confirmed manifestations in regard to bones, joints or viscera, iodine will excite a good circultion, modify he lymphatic ground and permit it to attack the

tuberculous process. Needless to say, in the treatment of hip diseases and necrosis iodine is usually continued over a long period of time and large doses are usually employed. Iodine has also been found to possess vasodilatory power in the treatment of arteriosclerosis. The resolution of the atheromata, the enlargement of the arterial walls are the therapeutic desiderata.

Iodine is one of our most valuable drugs. In its 120 years of history its true potentialities until recently have been but dimly realized. Its earliest uses have been as an internal remedy and within more recent times physicians have begun to realize that iodine either in the form of a tincture, aqeuos or oily solution or in some colloidal form may be given internally with resulting benefit in quite a few constitutioual diseases. While iodine is admitted universally as being one of the best antiseptics in possession of doctors yet a woefully small number of practitioners seem to realize that the virtues of iodine lie in quite a few other domains rather than as a germkiller. Iodine is an essential constituent of the human body and according to Crile plays an important part in human metabolism as well as in maintaining health and fending off certain constitutional ailments.

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PRINCIPLES OF DIET IN FEVER. *

By

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As fuel is necessary to keep the fire burning so food is necessary to keep up the fire of life in animate beings. But the amount and the quality of food which are necessary in health differ from those necessary during a febrile attack. When a person is suffering from fever, he always asks his physician about the food to be taken. The physician has also a great responsibility in selecting the kind of food to be taken by the patient. There is an important principle in this choice and today I want to discuss a little about this principle, which I think would not be very uninteresting. In this principle the physicians are often found to differ in their opinions a great deal in ordering what food to be taken and what not. Some physicians prefer the theory of starvation during fever, others are more liberal in giving sufficient food to their patients. The former do not allow their patients to take even very scanty quantity of food. In their opinion patients should starve during fever and this starvation diet would be more beneficial to them.

The principle of starvation diet lies in the fact that the mucous membrane of the gastro-intestinal tract is found in an irritative condition at the advent of fever and if free diet is supplied this irritation increases and instead of subduing the cause of fever, enhances the susceptibility. This theory was also promulgated by the Ayurvedic Authority. In Ayurved Sangraha which is a synopsis from Charaka, Susruta, Harit etc, a few slokas are found the meaning of which is that fever is due to the obstruction of the path of sweat and secretions of the body and anorexia is caused by the irritation of mucous membrane of the intestines and for this reason starvation is the rule during any fever. A patient laid up with fever should take only light food, as the power of digestion lessens due to want of Phlegm. During fever one must carefully avoid bath, purgation, sexual intercourse, physical exercise, sleep in day time, milk, clarified butter pulses, fish, curds, wine, sweets, heavy meals, walking, anger, etc.

After all it is true that every patient suffering from fever must take light diet but according to the teaching of modern science starvation is not the rule. The heat of the body is caused by the combustion of food and as food acts as a fuel, it might be assumed that by its liberal intake more heat will be produced. During fever when there is a high temperature already, liberal diet may raise the temperature further. But it is seen that the temperature of a patient suffering from fever does not rise if liberal food is taken by him. Therefore it is concluded instead of goading a patient to further asthenia by starving him, liberal supply of food should be administered to support his strength. We are often advised in text books of Medicine to allow the patient to take light nutritious food. Now the question is what are these light nutritious diets?

In our country generally Sago with or without milk, Barley water, Arrowroot, Sugar, Fruits etc. are advised. Whole milk is not generally given as it is not easy to digest, whereas the milk if it is mixed with sago, barley, sodawater etc. it becomes easily digestible. Some times Albumen water, whey, dried milk etc. are given.

In fever the temperature of the body rises and there is a great wastage of Nitrogen—containing tissue of the body. The tissues are easily broken down. The heat producing mechanism is disturbed and the heat production is increased. It may be that the toxins which cause the disease are liable for the disturbance of the mechanism, which in normal healthy condition is kept in balance. As the Nitrogen containing tissue is destroyed in abundance, Nitrogenous food to supply that wastage becomes a failure in febrile condition. Because the kidneys already overtaxed with the excretion of the nitrogenous waste are much more put to further strain and may increase the toxæmic condition of the system. Therefore the special choice of food in fever falls upon the protein-sparer—the Carbohydrate. During fever the acidity of the system increases and it is only natural for the physician to devise means to decrease the acidity. Alkaline medicines are prescribed for this purpose. But as starchy food has the effect of diminishing the acidity of the system it will be more prudent to have recourse to starchy food in moderate quantity than to depend purely on alkaline drugs for effecting the necessary decrease of the febrile acidity. The physicians are thus very much fond of Sago or like material. But why not rice? Sago contains about 87 % of starch and 1.4 % protein, while rice contains about equal quantity of starch i.e. about 76 % and 5 % protein.

One thing should be considered. Sago is prescribed and not rice, because when sago is prepared, only little quantity of sago is taken and is boiled with water and is taken by the patient but when rice is advised he is supposed as if to take his full meal of rice, dal, curries, fish, oil, ghee, condiment and all; which instead of benefiting the patient put his system to further strain and consequent trouble. On the other hand if similar quantity of rice boiled with water is taken by the patient mixed with milk or only with a little quantity of vegetable soup not rich with oil, ghee etc. the result becomes the same as that of taking sago.

Another thing should be considered of patients to whom rice is the principal and daily diet. Now during any fever most probably it is convenient to discontinue the kind of food he is accustomed to take. The food extract is absorbed in the system through the mucous

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membrane of the intestines. The infection reaches the system while the system is surcharged with those kinds of fluid juices from those kinds of foods. I think it would be a better principle, to discontinue those kinds of foods which the patient was taking while the toxæmia of the infection could not be checked by the resisting power of the system, or in other words, not to allow further to introduce that portion of the body medium constructed by the food he was taking in which the toxæmia could grow, but to allow a new medium in the form of light nutritious diet which he was not accustomed to take before the fever. So that the infection not getting suitable medium might itself cease to act or the intensity might abate. I further intend to add here a word that sometimes craving for a particular kind of food becomes great and I think if it be not the perverted appetite during diseased state of the body, that kind of food becomes necessary for the proper maintenance of health and that kind of food one should take in moderation.

The composition of boiled rice and boiled sago may be compared:

	Rice		Sago	
Water	52.7	p. c.	89.0	p. c.
Protein	5.0	,,	1.38	,,
Fat	0.1	,,	0.04	,,
Carbohydrate	41.9	,,	9.37	,,
Mineral matter	0.3	,,	0.08	,,

I think the Manda (boiled rice is pressed into a mass and is allowed to pass through a piece of cloth with a little pressure and the smooth mass is collected from the bottom of the cloth) of rice may be mixed either with milk and sugar, or with vegetable soup and salt, and may be taken by the patient according to his taste.

The diet of fever patient should be fluid, as sufficient quantity of liquid is required by the patient to help elimination because large quantity of fluids are excreted by the lungs (through rapid breathing) skin sweat etc. Salivery secretion being lessened, fluid diet is preferred and the patients generally dislike chewing during fever. Milk is an important diet in fever and should be given mixed with some carbohydrate. The sugar in the diet of fever has been much discussed by many authorities. It is practically a pure carbohydrate and of all forms of sugar Milk-sugar seems to be the best.

Though starvation is not the rule during fever yet one must be careful in advising diet more than the body can assimilate. The diet should be moderate in quantity and must not overtax the digestive system. We often see patients during convalescence suffering from Herpes Labialis—which is supposed to be caused as tradition goes, by taking acids during fever. But the cause is often found to be due to taking food causing indigestion. It is also often found that after the fever is gone—without waiting for sufficient time to restore the system to a normal condition—full diet of rice is given and the fever relapses. The Kavirajes call the condition to be "Rasastha", that is, the system becomes excessively charged with Rasa (lit. juice, but conveying the sense that the system becomes laden with an excess of toxæic fluid whose index is

frequently an abnormal flash of the face). It is true that during the beginning of the fever the face of the patient is found flushed and during the cessation of the fever the face becomes shrunken. About the Rasa whatever its true meaning may be, it was understood by learned men of all countries and so fastings have been ordered by the great religious men throughout the world. The Hindus are specially favourite of Newmoon, Fullmoon etc. The Muhammadans fast specially during Ramzan. The Chiristians also have their fasting during Lent. If Newmoon falls during convalescence, the beginning of full diet is often postponed on that day.

In conclusion I take the liberty to say that during fever the diet should be moderate in quantity and quality according to the assimilation power of the system and you know "Fever supports the sick man and Love the lover".

BLOOD CALCIUM IN HEALTH AND DISEASE.*

BY

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To obtain a correct information as regards the calcium content of blood the early workers obtained results with wide variations in the figures for wholeblood, serum plasma and corpuscles. Marriott and Howland (1) advocated estimation of serum calcium for the purpose of comparison and stated that there is practically no calcium in the corpuscles. Leiboff (2) definitely shows that red blood corpuscles contain no calcium. Mazocco (3) states that the calcium content of the plasma is practically identical with that of the serum and Halverson, Mohler and Bergeim (4) confirm this statement. Though Stewart and Percival (5) state that concentration of calcium in the plasma is 10 to 15 per cent. higher than in the corresponding serum, Koechig (6) gives values for the plasma calcium ranging from 9·5 to 11·0 mgm. per 100 cc. It is however generally recognised now, that for the purpose of comparison, serum calcium affords the best data, because, on account of the variability of the corpuscular volume, calcium estimation of the whole blood does not furnish a reliable data. To study the variations in the calcium content of blood in different diseases, it is essential to determine a normal standard. With that object, calcium content of the serum was estimated from a series of 40 normal cases. Refer table I. By oral administration of calcium salts Hoyle (7) observed, that the maximum rise in serum calcium occurs in two to four hours and does not return to normal level within 6 hours. In order to avoid any influence of calcium in the food, the blood in each case was collected at about 10 a. m. in empty stomach, the last meal being taken the previous evening, at about 8 p. m.

The variations studied in this paper were in cases of:—

(1)	Chr. Diarrhœa	Table	II.
(2)	Phthisis	,,	III.
(3)	Tuberculous Osteomylitis ...	,,	IV.
(4)	Osteomalacia	,,	V.
(5)	Pregnancy	,,	VI.

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Experimental :—

TABLE No. I.

NORMAL SERUM CALCIUM.

Males.

Case No.	Age.	Mgs. of calcium in 100 cc. serum.
1	20	10·5 mgs.
2	29	12·2 ,,
3	21	10·1 ,,
4	21	10·6 ,,
5	21	11·0 ,,
6	32	9·7 ,,
7	17	9·7 ,,
8	22	10·2 ,,
9	15	10·39 ,,
10	30	8·4 ,,
11	27	10·2 ,,
12	26	10·4 ,,
13	26	11·0 ,,
14	28	9·7 ,,
15	28	9·8 ,,
16	25	11·0 ,,
17	40	9·6 ,,
18	27	10·5 ,,
19	40	8·4 ,,
20	30	8·6 ,,
21	40	10·0 ,,
22	24	12·0 ,,
23	23	10·2 ,,
24	25	9·1 ,,
25	30	10·5 ,,
26	32	9·5 ,,
27	25	10·0 ,,
28	30	10·0 ,,
29	35	9·7 ,,
30	35	10·1 ,,
31	16	8·5 ,,
32	50	9·2 ,,
33	49	10·0 ,,
34	45	10·7 ,,
35	44	10·3 ,,
36	52	9·4 ,,
	Females.	
37	30	9·9 ,,
38	24	9·0 ,,
39	18	10·6 ,,
40	32	8·9 ,,

Discussion :—Serum calcium is estimated in 40 normal cases. The maximum number of values lie between 8·5 and 10·5 mgs. of calcium in 100 cc. of serum. Hence this figure could safely be taken as the normal range of serum calcium for Indians. Age seems to exert no influence on serum calcium as estimations were made in subjects of different age ranging from 15 to 52. There seems to be no sex variations as the figures for the females lie within the normal range.

TABLE—II.

CHRONIC DIARRHOEA.

Case No.	Age and Sex.	Mgs. of calcium in 100 cc. serum.	Duration of disease.
1	M. 28	9.1 mgs.	3 years.
2	F. 28	8.8 ,,	3 ,,
3	M. 30	11.0 ,,	4 months.
4	M. 40	9.5 ,,	1 Year.
5	F. 55	7.1 ,,	1 ,,

Discussion :—In chronic diarrhoea with the exception of one case the rest lie within the normal range, hence there is no alteration in serum calcium in chronic Diarrohea.

TABLE—III

PREGNANCY.

Case No.	Age.	Mgs. of calcium in 100 cc. serum.	Duration of pregnancy.
1	20	9.2 mgs.	Full term.
2	22	7.3 ,,	5th month.
3	30	9.5 ,,	Full term.
4	22	9.3 ,,	,,
5	22	7.3 ,,	,,
6	25	8.6 ,,	,,
7	21	7.4 ,,	4th month.
8	30	10.5 ,,	Full term.
9	29	9.5 ,,	,,

Discussion :—In pregnancy though there is a slight fall in cases of full term, still the figures lie within the normal range. Only in two cases there are definite low figures—one in the 4th month and the other in the 5th month. This data is insufficient to justify any conclusion.

TABLE—IV.

OSTEOMALACIA.

Case No.		No. of pregnancy.	Duration of disease.	Mgs. calcium in 100 cc. serum.
A	1	2	1½ years.	9.2 mgs.
	2	1	3 years.	8.8 ,,
	3	2	2 months.	9.6 ,,
	4	1	1 month.	9.9 ,,
	5	Nil	2 years.	9.6 ,,
B	6	2	1 year.	14.2 ,,
	7	1	6 months.	11.5 ,,
	8	1	1 year.	12.6 ,,
	9	2	8 months.	11.3 ,,

A.—untreated cases.
B.—cases treated with milk injections 5-10 cc twice weekly.

Discussion :—Untreated cases of Osteomalacia show normal figures. Cases treated with intramuscular injections of 5-10 cc of milk twice weekly show higher figures. Milk is very rich in calcium (9) and being a colloid substance the calcium in it is probably better absorbed and this may be advanced as an explanation for this observation. But this does not seem to be adequate enough to explain the phenomenon. Because in each case the blood was taken just before the milk injection was given. Taking for granted that absorption was less rapid by the intramuscular route still the rise in serum calcium should have come down to normal level within 3 days as the injections are given twice weekly according to the observations of Hoyle (7). The next possibility is that due to injection of milk there is a response in the system manifested by a rise in serum calcium. The third possibility is, that at some stage of the disease there is greater concentration of serum calcium prior to excretion. This explanation seems to be most plausible due to the fact that Osteomalacia is caused by extraction of calcium from the the bones by the soft tissues and the condition can be artifically produced by withdrawing calcium from food for a prolonged period (8).

TABLE—V,

PULMONARY TUBERCULOSIS.

Case No.	Age & Sex.	Duration of diseases.	Mgs. of Calcium in 100 cc. serum,	Remarks,
1	M—32	8 months.	7.2 mgs.	Untreated,
2	M—20	2 months.	6.4 ,,	
3	M—25	11 months.	9.2 ,,	
4	M—22	9 months.	10.2 ,,	
5	F—24	2 years.	12.1 ,,	Under treatment with calcium.
6	M—35	6 months.	9.6 ,,	
7	M—28	4 years.	12.4 ,,	
8	M—30	6 months.	13.5 ,,	
9	F—22	2 years.	14.2 ,,	
10	M—30	7 months.	12.2 ,,	

Discussion :—In Pulmonary Tuberculosis some of the early untreated cases show a fall in serum calcium, the rest being normal. The late cases under treatment of which calcium forms a part, show a definite rise. This may be due to calcium Therapy. But according to Cushny (8) a very small amount of the ingested calcium is absorbed and according to the observations of Hoyle (7) the rise in serum calcium should come down to normal level after 6 hours. The other explanation that may be forwarded is that in late cases of Pulmonary Tuberculosis there is greater concentration of serum calcium prior to excretion.

TABLE—VI.

CHRONIC OSTEOMYLITIS TUBERCULOUS.

Case No.	Age & Sex.	Durationof diseases.	Mgs. of calcium in 100 cc. serum.	Remark.
1	F—18	10 months.	12.8 mgs.	These cases are being treated surgically and cod liver oil. No calcium is given
2	F—14	1 year.	11.1 ,,	
3	F—20	9 months.	11.8 ,,	
4	F—25	2 years.	13.8 ,,	

Discussion :—In Tuberculosis Osteomylitis there is a definite rise in serum calcium without any administration of calcium. This rise may be due to greater concentration of serum calcium prior to excretion. This observation together with the observation in Pulmonary Tuberculosis leads one to conclude that in late cases of Tuberculous infections there is greater concentration of serum calcium prior to an increased excretion.

SUMMARY.

1. Serum calcium is estimated in a series of 40 normal cases. The maximum number of values are between 8.5—10.5 mgs. So this figure may be taken as the normal range of values of serum calcium for Indians. Age and Sex cause no variation in serum calcium.

2. There seems to be no disturbance in serum calcium in chronic diarrhoea.

3. In pregnancy though there appears to be a slight fall in cases of full term still the figures are not outside the normal range.

4. Untreated cases of Osteomalacia show normal figures for serum calcium. Cases treated with injections of milk 5-10 cc. twice weekly, show a higher figure. The rise in serum calcium may be due to injections of milk or greater concentration of serum calcium prior to excretion.

5. In pulmonary tuberculosis some of the early untreated cases show a fall in serum calcium the rest appear to be normal. The late cases under treatment, of which calcium forms a part, there is a definite rise in serum calcium. This rise may be due to calcium therapy or greater concentration of calcium in the serum prior to excretion.

6. In cases of tuberculous osteomylitis there is a definite rise in serum calcium without any calcium administration. This may be due to greater concentration of calcium prior to excretion.

This observation together with the observation in cases of Pulmonary Tuberculosis points definitely to the fact that in late cases of Tuberculous infection there is greater concentration of serum calcium prior to excretion.

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PULMONARY TUBERCULOSIS IN CHILDREN.*

BY

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Tuberculosis in infants and children presents some interests peculiar to this age. From the view point of classification, symptomatology and diagnosis, one has to be careful about the ideas correlating to the manifestations of this disease in teen ages and grown up persons. For instance, the disease may not show the classical signs one is familiar with, yet its non-detection will spell havoc to the victim and those who come in contact with him.

As to the classification, the Americans have resolved to distinguish between the childhood type and the adult type. The manifestations due to the first infection is called the childhood type irrespective of the age in which it occurs. Its peculiarities are (i) tendency to heal, (ii) involvement of any part of the lung, followed by (iii) involvement of hilum and tracheo-bronchial nodes of the same

*Specially contributed to the "Antiseptic."

side, (iv) resolution of the inflammation, (v) calcification or ossification of the caseous glands and of the lung tissue constituting the Ghon's tubercle of the patriarchs. Sometimes glands may remain caseous—a potential source of danger. It should be clearly understood that the age has got no monopoly for the childhood type of tuberculosis. Prolonged continuation of the disease under unfavourable circumstances or repeated or massive infection may lead to the formation of the adult type of the disease.

Then again the adult type is prone to be destructive of life. It cannot occur unless there has been a previous childhood type of infection. It commences in the apex though some now dispute the place of election to be the sub-clavicular region. Fibrosis and caseation are intimately connected with this type in contradistinction to calcification and ossification of the childhood type. Ranke and others love to put parallelism between tuberculosis and syphilis—designating the lesions to be primary, secondary and tertiary. Primary lesion, according to them, is anywhere in the lung parenchyma. The secondary lesion is in the hilum and tracheo-bronchial glands. The tertiary lesion is in the apex. This classification becomes redundant if the terms 'childhood type' and 'adult type' are accepted.

With regard to the symptoms, one must eliminate other causes of prolonged fever, loss of weight, anaemia accompanied or not accompanied with cough. A bronchitic type is rather common in my experience. No definite lesion under X-ray but the history of the susceptibility to cold and bronchitis had been the guiding symptoms. A source of infection in majority of the cases could be detected. We do not find much about this kind in the text books. Next in order is broncho-pneumonia or pneumonic form. In other countries, they attach great importance to the history of Phlyctenular conjunctivitis or erethema nodosum. Unfortunately the carelessness and ignorance in this country are responsible for the parents' or guardians' hesitant position with regard to the exact nature of the previous ophthalmia. Thus these factors are very often overlooked.

So, far as the intrascapular dullness, D'Espine's sign or Smith's sign are concerned, no great store could be laid by them. D'Espine's sign is bronchophony of the whispered voice elicited by auscultation over the spinal column between the scapulae. Normally the whisper is loudest at the 7th cervical or the 1st dorsal vertebral region. In treacheobronchial glandular enlargement, it may be equally loud up to the fourth or fifth dorsal vertebræ. But this sign is not pathognomonic of tuberculosis. It is found in other conditions as well. Smith's sign is a hum audible on the

manubrium sterni when the child strethes its breast as by looking towards the ceiling. It is also not peculiar to tuberculosis.

Since it is well known that the first two years of life of a child, specially the first year are particularly risky and the third to the 12th years are comparatively safe so far as tuberculosis is concerned, human ingenuity has tried its best to arrive at a correct diagnosis by various methods. Auto-urine reaction, complement fixation, discovery of Tuberculous bacillus in sputum have so far failed more often than not. But inoculation of the guinea pig, X-ray and tuberculin test—Von piquet or Mantouse—have rendered very real help. As the child swallows the sputum, its stomach is washed out with 200 c. c. of sterile water. After centrifuging the fluid smears are made of the deposits to find out T. B. under microscope. Some guinea pigs are inoculated with the stomach wash. If the guinea pigs show the macro and microscopic signs of tuberculosis after the post mortem examination, the diagnosis of pulmonary tuberculosis of the child is confirmed.

In tuberculosis of children, the X-ray often detects lesions when none are even suspected. The X-ray examination may fail as well due to the minuteness of the lesion or inconvenient position of the lesion for exposure or bad technique. This being so, the claim of the tuburculin test is more tenable. Mantouse test gives 10 p. c. more positive results than the Piquet. Positive tuberculin test means allergy or hypersensitiveness of the system to the protein of bacillus tuberculsosis. Minus the clinical symptoms, this reaction speaks only about tuberculous infection. Of course, tuberculous infection and tuberculous disease are not the same. The infection leading to such changes as the formation of pathological lesions stands for the disease. Otherwise the germs enter the body simply to be killed, ejected or retained as innocuous things and thereby the body resistance is raised.

It is therefore wise, as soon as we come across a child acting without a definite diagnosis but giving positive tuberculin reaction, to form a reasoanable suspicion of the case and call in the aid of the radiology and guinea pig innoculation. Even in the absence of these latter two, we would be justified in treating the case as one of tuberculosis. This is the present position of the accurate diagnosis. One ought to enveadour to trace the source of infection—a tuberculous father, mother, relative or nurse. Because that will complete the picture.

A lot of interest attaches to the hereditary influence on the disease. The old view was in support of the heredity. The new view dismisses heredity, the placenta normally serves as a barrier between the maternal and fetal circulations. Therefore it is contended that there can be no prenatal tuberculosis. Tubercular male animals have been

made to mate healthy female animals and in no case a tuberculosis young was produced. Therefore the postnatal contact should occasion the early cases of tuberculosis in the new born. But against this are the two views. (i) A syphilitic father can be responsible for a prenatel syphilitic child, of course, here the placenta is considered capable of being infected by the disease. Tuberculosis of the placenta may similarly play the trick. (ii) Secondly, the ultra-microscopic, filtrable stage of the Tubercle Bacilli may cause the disease inside the womb (calmette, Valtes, Negre). So the contest between the traditional belief, experience of life and scientific observations is continuing unsettled to a finality. Let us hope for brighter days. At any rate it will be safe to presume that a bad family history badly influences a case.

Let us repeat, for diagnostic purposes, one has to carefully elicit the family history and history of contact. The radiology may reveal the increased density of the hilum, the lung parenchyma or both. The cutaneous tuberculin test will indicate the hypersensitiveness of the system. Microscope may or may not find the tubercle bacilli. A few words might be said as to how the tuberculin test should be made. Three kinds of test, percutaneous, epidermal and intracutaneous, are in vogue. For those who will not allow any instrument being used on their kiddies, percutaneous test is suitable. The skin over sternum is cleansed with ether. A small amount of Fresenius's concentrated old tuberculin, about the size of a pin head, is rubbed. Papules over the area after forty-eight hours will constitute a positive reaction, There is little or no erythyma. Some times small vesicles take the place of the papules. Von pirquets test is epidermal. The skin of the fore-arm is sterilised with alcohol. Then three small areas are selected apart of two inches and sacrificed without drawing blood. Koch's old tuberculin diluted with four parts of sterile Glycerin is used, of which a drop is used on the two scarified areas. The third is served as control. After ten minutes, the remaining tubeculin is gently mopped off with absorbent cotton. No tuberculin ought to flow upon the control. To be more precise, Von pirquet later on advised to use undiluted tuberculin. The parts are seen after 24 hours and again after 48 hours, and lastly after 72 hours. If all the three areas appear the same, the test is considered to be negative. In positive cases, the control remains without redness or induration but the scarified areas would be red and hard. The intracutaneous or Mantouse Test is performed in the following manner. The skin of the fore arm is cleansend with ether or alcohol. A tuberculing syringe draws in 0.01 mg. of tuberculin in 0·1 c.c. The fine needle pierces the superficial layer of the skin (and not the skin). The stuff is injected. It produces a wheal at once. If positive in 24 to 96 hours, a deep red nodule appears at the site of inoculation.

The nodule is surrounded by an area of pinkness. The size of the nodule is ½ to 1 inch in diameter. If negative, after 96 hours another similar injection is made. This time the 0·1 mg. tuberculin is taken in 0·1 c.c. solution. If it is still negative, after 96 hours, a third injection is made with a solution of tuberculin 1·0 mg. in 0·1 c.c. Even if no positive reaction on the third occasion, the conclusion is obvious that the child has no infection at the time.

Of the symptons, the following may be valuable.

(1) Indefinite but prolonged fever.

(2) Loss of weight.

(3) Cough, bronchitis, acute cold, pneumonia or broncho-pneumonia.

Prolonged convalescence from pneumonia is suspicious. One or more of these symptoms together with X-ray finding and tuberculin test will set all doubts at rest.

Treatment.—Isolation of the source of infection is the alpha and omega of the treatment. Prevention of further infection is absolutely necessary if the development of adult type or destructive type is to be averted. Fresh air, sunshine, and hygienic environment are of paramount importance. Rest should be enjoyed. The infant should not be needlessly handled because it causes loss of rest. Wholesome food, suitable for the age, with sufficient vitamins and proteins should be ensured. Codliver oil with orange or tomato, Ergosterol or Irradiated Ostelein with the above fruits will supply the necessary vitamines. Enough clothing should be provided. The other symptoms should be treated as they arise. For remineralisation of the system the following combination is useful.

Ars Iod	gr $\frac{1}{100}$
Sodi Chlor	gr ½
Mag. oxide	gr ½
Cal. phos.	gr ii

Thrice daily for an infant of 1 year. I got better result by alternating Sodi-Ars. gr. $\frac{1}{100}$ every other week with Ars. Iod.

Solganal B intramuscularly is useful in the exudative type. Artificial Pheumothorax may be resorted to when indicated i.e. in unilateral cases or stubborn hæmoptyses cases.

STUDIES IN INDIAN MEDICINE.*

BY

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INTRODUCTION.

The object of the science of antiquity is to revive by judicious selection all the animating force that there is in the past life, feeling, thought and belief, into the living present. It is not a question of reviving the ancient forms of activities; but it is the spirit of thought which shines so clearly in the ancient wisdom, that the modern interpreter has to recapture and convert to fresh purposes; for, that spirit may help to loosen the choking hold upon us, of the complicated and extravagant adumbrations of the modern mechanical civilisation, and recall attention, to that inner core of life and activity, which remains constant amidst all the permutations and combinations of the external circumstances, and the blunting of the individual thought and initiatives.

The subject matter of our study is the Hindu and Arabic systems of medicine that have been in vogue from thousands of years, and that are even now catering to the crying needs of the majority of ailing Indian populatien. Hindu medicine-called Ayurveda in Sanskrit and Siddha in Tamil is as old as Vedas themselves. It can be considered as the classical system of human medical lore. Unani is the term applied to Arabic medicine, encouraged chiefly by the Mohamedan conquerors of the mediæval ages. Though akin to the Hindu sytem, it differs in certains cardinal principles from the classical knowledge, having a leaning towards the modern scientific medicine.

As the aim of these articles is to present the practical outlook of these ancient systems on pathology, diagnosis and treatment, the term 'Indian Medicine' is adopted to comprise all the systems, and the subject is dealt with from the viewpoint of modern medicine. Mere verbal authorities from books such as Charaka, Susruta, Vagbata, Agastya, Theraiyer, Thibbi Akbar, etc. are as far as possible omitted, and a rational presentation attempted, just because, the readers—scientific medical men as they are—are requested to judge for themselves, in their own experience, on the basis of inference from primary principles, the utility or futility of these old systems of medicine, by the crucial tests of modern knowledge.

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* Specially contributed to the "Antiseptic."

MODERN VIEWS AND ANCIENT THEORIES.

The method of studying the human body in health and disease, nd the art of managing its ailments according to the principles of ndian medicine, give the physician a sort of synthetic outlook in hich there seems to be a place for every observation in a proper erspective. The demand for this sort of clinical viewpoint, is eenly felt in modern medicine. Thus W. J. Pearson and W. G. Wyllie in their book on 'Recent advances in diseases of Children' rite 'In medicine as in many other domains of thought we seem to ave reached a stage at which it is necessary to take stock of our urroundings, to examine with critical eye the achievements in the nvestigation of disease, to assess the sum total of knowledge ained of the body in health and disease, and to appraise the value f methods used to obtain such knowledge. The day has arrived hen it is vital to consider how the enormous mass of facts which ave been accumulated by scientific research can best be correlated n an attempt to trace the fundamental process in disease'.

With this object in view, these two authors have classified uman beings from childhood onwards into two distinct groups as ollows :—

Alkaline or Lymphatic or Hypocalcic type.	Acid or Hypercalcic type.
omplexion.—Dull and pale.	Bright and clear.
kin.—Coarse and clammy.	Bright red in colour, soft, delicate and transparent looking. Tend not to swell easily.
yes.—Dull and languid.	Very bright.
eeth.—Small and frail with poor enamel, tendency to early caries.	Massive especially incisors enamel good. Early retraction of gums.
lucous membranes.—Pale watery.	Good red in colour ; firm to feel.
lair.—Sparse and poor	Luxuriant growth of fine hair.
luscles.—Soft, atonic and weak, sphinctors atonic.	Fine, normal tonicity ; syhinctors hypertonic.
lentality.—Dull and torpid, lack of energy and interest. Educationally slow.	Bright, active and intelligent. Restless, impulsive and a tendency to nervousness. Fidgety and emotional.
Build.—Tend to be fatty.	Tend to be thin.

Circulation.—Pulse slow and of low tension. Blood pressure low. Arteries soft. Evidence of poor circulation in skin which is pale and often cyanosed. Blood tends to show excess of lymphocytes.	Pulse quicker and of higher tension. Blood pressure normal. Arteries of better tone and firmer to touch. Feel cold easily, Poor circulation is shown by blueness of exposed parts and chilblains.
Temperature.—Tends to be subnormal.	Easily elevated owing to slight causes.
Naso Pharynx.—Adenoids-tends to be more enlarged than tonsils, which look pale or juicy. Mucous membrances pale and soft. Tongue is moist and pale and furs only moderately. Enlargement of lymphatic glands tends to be general but moderate in degree. Glands are soft to feel.	Tonsils tend to be more enlarged than adensids and are of a different type i.e. have a hard red appearance. Mucous membrance of mouth and tongue red ; tends to form thick fur, Secretions in mouth and throat more viscid i.e. in the form of thick mucus. The same mucoid tendency is seen in the bowels. Lymphatic gland enlargement not so extensive. Enlargement tends to be more localised and better marked. Glands feel very firm.
Vaso motor system.—Reaction to stimuli slow. Sun or artificial ultraviolet treatment gives slow response.	Very quick reactions. Small doses of natural or artificial sun give a quick response. Poisons in the body or external irritation produce marked effects on the skin. Tendency to erythema.
Alkaline tendency.—Tendency to diarrhœa which is made worse by feeding especially with fat. Improves on acid diets and medication. Saccharides and incidentally phosphorus badly absorbed.	*Acid tendency.*—Prone to constipation. (Soapy stools) and to bilious attacks. Acid diets disagree. React well to alkaline diet and medication. e.g. fruits, green vegetables cereals.
Urine.—Faintly acid or alkaline. Amounts passed are large.	Strongly acid. Amount passed small.
Endocrine.—Tendency to develop signs of hypothyroidism and of excessive vagal and putuitory control.	Tendency to develop signs of hyperthyroidism and of excessive thyroid and adrenal control.

Diseases.—There is difficulty in absorption and assimilation. Tendency to rickets, moi s eczema, lymphatism, coeliac disease severe anaemic states leukæmia lympho-sarcoma, sarcoma, purpura, glandular tubercolosis, lymphade-noma, nephrosis, parenchymatous, nephritis, Rheumatoid arthritis.	There is difficulty in elimination. Tendency to rheumatism, dry eczema, Seborrhoea of the scalp, Impetigo, acne Rheumatic arthritis, Heart disease, Renal sclerosis, Cyclic vomiting, migraine fibrosis of lung or liver.

"Though it is in early childhood that these two tendencies are perhaps most marked, they are apparent at all ages, being particularly noticeable once again in middle age, when the condition of the body begins to deteriorate as the result of errors of living and environment."

"This classification for diagnosing may be but dimly recognised and accepted, but to take them seriously enough, to endeavour to convince others of their truth and enforce them in practlce is another matter. So long as our aim is to find out truth about disease and try to eradicate it, we maintain that there is already sufficient evidence before us to allow a dogmatic assertion as regards the adoption of this clinical viewpoint for the study and management of human illness."

Let us now make a comparative study of Hindu medicine in the light of these facts. The outstanding terms that strike one who reads either Ayurveda or Siddha are the *three doshas*—Vata, Pitta and Kapa-*Sapta Dhatus*; Rasam, Raktam, Mamsam, Medhas, Asthi, Majja and Sukram and their malas (waste-products) and *pancha bhutas*—Prithvi, Appu, Teyu, Vayu and Akas. Besides these, there is a separate thing called *ojas* which is the presiding factor in every activity bodily or mental.

Whatever may be the subtle or mystic significance of pancha-bhutas in Hindu medicine and philosophy for our present purpose, we can equate them to the five primary states of matter and energy, viz., solid or *Prithvi* e.g. earth: Liquid or *Appu* e.g. water; Radiant or *Teyu* e.g. fire; Gaseous or *Vayu* e.g. air; and Etheric or *Akas* e.g. space. All the five bhutas go to form the structure of everything in this universe animate or inanimate. However that bhuta by which a particular substance manifests itself to our sense, constitutes half and the other four, one-eights its structure. It need hardly be mentioned that in the human system solidity is seen, lipuids circulate, combustion is taking place, gases abound and space is everywhere present. The importance of Panchabhutas will

be seen especially in judging the properties of drugs and food stuffs; for substances differ according to their *dravyam*. i.e. structure being parthivam, apyam, tajasam, vayavyam or nabhasam.

The supporting structures of the body are called *dhatus*. They are seven in number—*Saptadhatus* viz. *Rasam* is the first product of food digestion. *Raktam* is blood; *Mamsam* comprises muscles, tendons, fasciae, ligaments and such structures; *Medhas* is fat; *Asthi* is bone; *Majja* is bone-marrow; *Sukram* is semen and *Arthavam* is ovarian secretion. *Ojas* is the quintessence of all the seven *dhatus*. Just like the epithelial, connective, muscular and nervous tissues in modern histology, *saptadhatus* in Hindu medicine go to make up the component tissues of every organ in the body.

Regarding *malas*, they are not, merely excretory products. Their presence is absolutely needed for the proper regulation of the systemic reactions and the maintenance of the body-integrity. Urine and faeces are the *Malas* of food taken in. The *Mala* of *Rasam* is gross *Kapam* (mucoid secretions), of *Raktam* gross *Pittam*, of *Mamsam* the secretions from the nose and ear, of *Medhas* sweat, of *Asthi* nails, of *Majja* hair, and of *Sukram* or *Arthavam*, the oily portions in the eyes, skin and faeces.

The *tri-dosha theory* forms the framework of Hindu medicine, clinical as well as pathological. Human beings whether in health or disease are studied by this three-fold classification. We have seen how Pearson and Wyllie have formulated the grouping of patients into two types acid and alkaline. Here we have a third type described. This is but a commonsense conclusion; for when there are two distinct types that can be clinically diagnosed and treated, naturally there ought to be a third state manifesting features midway between these two, but yet well defined in itself as to warrant a separate grouping. In the following paragraphs, the readers will observe on a broader outlook, the striking similarity between the *Vata* type and acid type, *Kapa* type and alkaline type, and *Pitta* type and acid-alkaline type. *In drawing this conclusion it should be elearly kept in mind that*, as the ancient physicians had only clinical data furnished by the five senses without any mechanical aid that a modern doctor has in his methods of diagnosis and treatment, we should base our comparison on such information alone. For all practical purposes, this gives us enough points to justify the working hypothesis of the tri-dosha theory especially in a bedside clinic.

The whole human system is a vayu-driven machine consisting of a net-work of innumerable ducts within which circulate the nutritional fluids absorbed from the food eaten, the water taken in, and the air breathed out. From this arise, the bodily energy, the supporting structures. and the waste matter. Though *Vayu* is the

primary factor, all the process involved in the conversion of food, water and air into matter and energy of the body, is taken to be the duty of *Pitta*. The function of *Kapa* is to keep every tissue in a condition fit for the proper action of *Vata* and *Pitta*. In other words, *Kapa* stands for the stamina and the reserve force of our system. Thus *Vata* may be said to be the dynamic factor, *Pitta* the metabolic activity and *Kapa* the static energy of the human body. Health is that state of the body in which the three *doshas* are in a state of equilibrium i.e., neither excessive, nor diminished or perverted, maintaining the *Sapta Dhatus* and *Malas* in their normal quality and quantity. Diseased condition of the body takes place when the *tridoshas* are out of equilibrium, either singly or in combination with two or three and does not keep the *dhatus* and *malas* normal. Now we shall study the three doshas separately in detail.

VATA.

Vata is the primal constituent of the living body. It is the index of life. It is subtle in nature embracing *Akasa* and *Vayu Bhutas*. It is called Vayu (va-to move) from the fact of its coursing throughout the universe. It causes all the organs motor or sensory to perform their respective functions. It upholds the *Sapta Dhatus*, *Tridoshas* and *Malas* in a state of equilibrium which means a healthy condition of the body. In general it is the cause of all human ailments. Mental activities such as enthusiasm, concentration, self-control etc. are originated by *Vayu*. It promotes the process of repair in injured tissues, helps the growth of organs and causes the embryos to take up the specific features of their respective species.

Judged from its clinical manifestation, six are taken to be the primary properties of *Vata*. They are *Lagu*—lightness; *Seetham*—cold; *Ruksham*—Dry. *Sukshmam*—subtle; *Karam*—rough; and *Chalam*—restless. Though all the three *Doshas* permeate every part of the body each *Dosha* has certain regions of the body as its sites of election. Thus the region below navel is called *Vathasayam* (the residence of vata). *Pakvasayam* (Colon), hip, thighs, ears, bones and skin are other parts where vata dominates. Contraction and expansion of tissues, flaccidity and rigidity, tremor convulsions and paralysis, emaciation, blackish white pigmentation, fissures of the skin and drying up of tissues, pains of different nature as pricking, boring, breaking, shooting, and dragging, movements of every kind, sprains, dislocations, fractures and cavity formation, violent excitement and cruel activities, debility, desire for warmth, constipation, sleeplessness, incoherent speech, impotency, loss of enthusiasm and flatulence are all manifestations of *Vatha* in the body.

On entering into the details of Vathic functions we meet with five varieties of *Vayu*. They are—(1) *Prana Vayu*, coursing in the upper part of the body, is responsible for all the reflexes taking place in the upper part of the body, as respiration, swallowing, coughing vomiting etc. Thus it is concerned in the discharge of all life activities in general. Hence called *Prana Vayu*—life breath. (2) *Apana Vayu* acts in the lower part of the body. Its function consists in bearing down foetus, faeces, urine, semen, ovarian secretion and menstrual blood. In short, the reflexes of the lower part of the body depend upon this *Vayu*. (3) *Vyana Vayu*, courses throughout the organism and helps in all the movements of the body either internal as circulation or external as muscular actions. (4) *Udhana Vayu* residing in the throat courses upward and produces speech song etc. (5) *Samana Vayu*, governs *Amasayam* (stomach) and *Pakvasayam* (intestines) aiding in the digestion of food and the separation of refuse.

Persons in whom *Vata* is the dominant *Dosha* have the following characteristics. They are lean, small sized and their body surface is rough and dry. Their voice is harsh, weak, broken and indistinct. Their sleep is unsound. They talk much, are hasty, soon get agitated, become inspired with fear and change their minds quickly. They succeed in understanding as soon as they hear, but their memory is not tenacious. Cold is very killing to them, and their joints creak when they sit, stand or walk. They are hot-tempered, given to biting finger nails and when asleep to teeth grinding, Vanity and excessive desire for music and dance are seen in them. In general vata type of persons become possessed of little strength, are short lived and infecund as regards offspring, They are not capable of much exertion, unsteady in their friendship and consequently of little wealth and few friends.

Following are the chief causes that excite the vata dosha in the body—violent athletie feats as wrestling with stronger persons, head-long plunge into water, leap from an inordinate height or over deep ditches, running long distances, receiving hard violent blows, bounding gait, excessive swimming or riding and carrying heavy loads; sexual excess, too much study—keeping up late hours at nights; partaking of foods that is pungent, astringent, bitter, light, parched and cold; long fasting, irregular meals, overeating; voluntary suppression or forcible performance of various reflexes as micturition, defaecation, seminal emission, flow of tears, eructation, sneezing etc; loud talking, fear, worry, anxiety misery and such psychic states.

Coming now to the measures that alleviate *Vata Dosha*, enemata and oils are considered as specifics. The site of *Vata* being colon

and rectum, medication through the lower orifice of the digestive tract clears out the vitiated *Dosha* at it is very root. Again, taking of oils internally along with foods and medicines or its application over the body when having a bath, act as sedatives to the excited *Vata*. Adding meat and meat-juices to the food, partaking of dishes with more of sweet sour and saline tastes, diaphoretic measures as hot bath, drinks, etc., massage, hydrotherapy, weak wines, and enjoyment of pleasures are all *Vata* alleviating measures.

Pitta—Pittam is the second of the three primal constituent of the body. It is responsible for all the metabolic processes in the system. i. e. the conversion of food water and air, taken in, into a state fit for the functional and structural aspects of the system. Of the *Pancha Bhutas*, *Teyu* dominates *Pittam*. Hunger, thirst, body-heat, sweating, complexion, knowledge, intelligence, cheerfulness, and all such activities are carried out by pittam.

The fundamental properties of *Pittam* are—*Snigdam* uncutuosity; *Tikshnam*—penetrativeness; *Ushnam*—hot; *Lagu*—lightness; *Visram*—odorous; *Saram*—mobile; and *Dravam*—fluid. Important places where pittam acts are the region between umbillicus and *Amasayam* (stomach), eyes, skin, urine, blood, sweat and *Rasa Dhatu*. Burning sensation, rise of body temperature, excessive thirst and hunger, congestion, exudation, softening and putrefaction of any part, desire for cool things, yellow discolouration of the skin, urine, stools and eyes, loose bowels, diminished seep, giddiness and delirium are all features of pitta overacting in the organism.

Just like *Vata*, *Pittam* too is of five varieties. viz. (1) *Pachakam*., This is situated between *Amasayam* and *Pakvasayam* (stomach and intestines). It converts the food taken in into *Rasa Dhatu*—the first product of absorption—and the excretory portions urine and stools. (2) *Ranjakam*—situated in the liver and spleen gives a red colour to the *Rasa Dhatu*. (3) *Sadhakam*. Heart is the site of this variety. It aids the emotional aspects of a being. (4) *Alochakam*—located in the eyes forms and interprets visual impressions. (5) *Prajakam*—lies in the skin giving lusture and complexion to it. Persons of *Pitta Prakriti* are characterised by the following features. Their body is delicate, clean and of an yellowish complexion. Lips, nails, palms, tongue, eyes, and soles, are copper coloured. Joints and muscles, are loose and soft. Freckles, moles, dark spots and minor eruptions are constantly present. The signs of old age soon set in them. Their digestion is keen, urine, sweat and stools copious, and the body emits a kind of smell. Their strength, sexual power, and the period of life are all mediocre. Mentally these people are intelligent, irritable, quarrelsome and indomitable. They possess wealth and are of a helping disposition.

Pitta is aggravated by the following causes. Anger, grief, fear, fasting, acid reaction of the food taken, foods that are pungent, sour, saline, keen, heat making and light, deficient gastric secretion, unnatural sexual indulgence, and exposure to sun. Purgatives compounded of sweet and cooling drugs, clear out the excited pitta from the body. Ghee and milk alleviate it. Sweet, bitter and astringent tastes and pleasant surroundings as fine scents, good music, beautiful buildings, intimate friends, playing children, shady trees, artistic fountains, flower gardens, river banks, and full moon are all sedatives to *Pittam*.

Kapa.—Kapam the third of the three *Doshas* is dominated by the *Prithvi* and *Appu Bhutas*. The static aspect of the body depends upon it. The general build, stability, strength, and stamina of our system are maintained by *Kapam* only. It gives an oily smoothness to the whole body and a smooth working to all parts. The chief places where *Kapam* prevails are the chest, head, stomach, throat, nose, tongue joints, fat, and *Rasa-Dhatu*.

The fundamental properties of kapam are—*Snigdam*. Unctuosity; *Seetham*—Cold; *Guru*—heavy; *Mantham*—dull; *Chlakshnam*.—smooth; *Mrithsnam*.—soft and *Sthiram*.—stable. Indigestion, heaviness, salivation, laziness, pallor, chilliness, cough, dyspnoea, dullness, pruritis, excessive sleep, dropsy, immobility, sclerosis, morbid deposit, depression and laxity of organs are all manifestations of *Kapa* acting in excess in the system.

Similar to the other two *Dhoshas*, *Kapa* also is of five kinds. (1) *Avalambakam*, located in the chest controls all the *Kapa Doshas* in the body. (2) *Kledhakam*, this is situated in *Amasayam* (stomach) and emulsifies the food taken in (3) *Tarpakam* lies in the head keeping the organs therein smoothly working. (4) *Sleshakam* is the *Kapam* in the joints and other binding structures, keeping them intact. (5) *Bodhakam*, is in the tongue enabling the perception of taste.

Kapa Prakriti people have the following characterictics. Body is oily, smooth and agreeable to look at. It is firm, contact, and well developed. Their face is cheerful, voice melodious, appetite and digestion healthy, and the sexual instinct rather above the normal. They are slow in their action. never get agitated, or upset, well versed in science and art and of very good character. They are very patient, suffer no vicissitudes of fortune, make large gifts, and are true to their words. They possess a long-life and a large fortune.

Day-sleep, sedentary habits, foods which are heavy, slimy, sweet, sour and saline, incompatible articles and those that increase mucoid secretions from the body, eating before the last meal is digested,

cold articles of diet, things that are viscid and block the bodyducts, excess of supporting treatment, and wrongly done emetic treatment, are all factors that gives rise to an aggravated *Kapa* in the body.

Emetics are means by which *Kapa* is expelled from the body, since the stomach is the main site of this *Dosha*. Honey is a specific in putting down vitiated *Kapa*. Similarly starvation, foods that are dry, little in quantity, hot-tempered and of pungent bitter and astringent tastes, old wines, sexual enjoyment, keeping up of late hours at night, violent physical exercise, mental worry, dry massage, fat decreasing drugs, avoiding pleasures and smoking, are all methods of alleviating *Kapa Dosha*.

(To be continued.)

Cases & Comments.

A VERY SERIOUS AND PERSISTENT CASE OF ERYSIPELAS.

By

Dr. J. Roy.

Urban Health Officer, Nowgong Assam.

Name—'A medical man; *Age*—32 years, *Sex*—Male. *Religion*—Hindu. *Married or unmarried*—Married, *Occupation*—Medical Practitioner, *Residence*—Nowgong, Assam,

Family—History—He is a man of respectable family. He has got one issue, uptill now quite healthy. Besides his son, he has got in his family, two sisters, a widowed mother and four brothers. They are all of temperate habits and possessing good moral character. His father died of Malaria at the age of sixty. No hereditary disease could be traced towards his father's side or mother side.

Clinical History of illness.—On the 11th November 1931 he got a small boil over his left Scapula. On the 12th November 1931 due to error of diet, he got a very serious acute Diarrhœa with vomiting, purging, cramps, with almost all other symptoms of cholera though he had temp. 100' F at that time. That was actually a Ptomain poisoning. From that he suffered for 3 days. However, by the proper use of medicine, he was soon relieved of the trouble but he became very much weak. The boil over his scapula was gradually increasing in size and was giving him some trouble. The poultice, Antiphlogistine and other external applications were tried but all were in vain. This was then opened by an efficient doctor under the strictest surgical caution on 20th November 1931. The dressings were changed regularly every day and the patient got a good relief and he was

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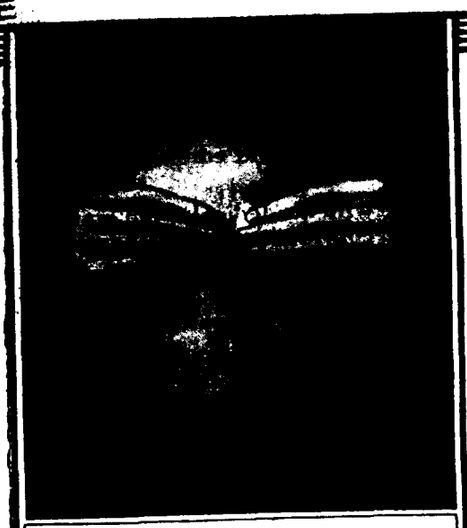

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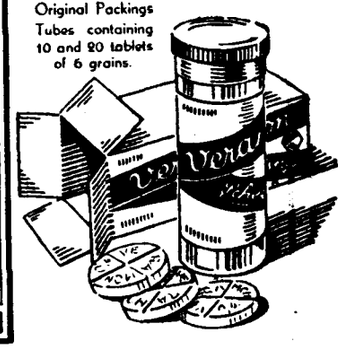

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6

Medical Men's Success in their Career.

"Lancet" endorses the following outlook on the part of the Editors of the "Antiseptic", as practical.

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CONTENTS, JUNE 1932 ISSUE

OBSTETRICS AND GYNAECOLOGY

Special issue of

THE ANTISEPTIC.

In July 1932.

This will be the 4th of the series of the Special issues that has been decided to bring out from time to time on various subjects. The size of the Special issue will be the same as that of the regular monthly issues but the former will contain more pages of reading matter. Among those whose contributions will appear in the number are —

1. Dr. E. Achutha Menon, F.R.C.S.E., Civil Surgeon, Govt. Hospital for Women and Children, Egmore, Madras.
2. Dr. J. Dhurlabh Dhruv, M.S., F.R.C.S., D.L.O., Surgeon to Sir J.J. Hospital, Bombay.
3. Dr. N.A. Purandare, M.D., F.C.P.S., Bombay.
4. Dr. P. Venkatagiri, M.D.C.M., Madras.
5. Dr. J. Noronha, M.D., Poona.
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8. Dr. A. Lakshmanaswami Mudaliar, B.A., M.D., F.C.O.G., 2nd Obstetric Physician and Gynaecologist, Govt. Hospital for Women and Children, Madras.
9. Dr. Miss. Carol E. Jameson, Missionary Medical Hospital for Women, Vellore. N.A.S., India.
10. Dr. Miss J. Jhirad, M.D., Bombay.
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MANAGER, P. O. Box 166, MADRAS.

discomfort. The headache continued and there was a general depression all over the body. The morning temperature was 102.4°F.

10, c c Antistreptococcus serum (Erysipelatus) was injected hypodermically. Tr. Steel and cinchona mixture, and Iodine and steel paint over the rash were continued.

Veronal Gr 6 one powder H.S.

Cascara evacuant dr 2 to be given at 8 p. m. were prescribed. A wide band of adhesive plaster was put beyond the margins of the rash to check its advance. The patient had two hours' very slight sleep that night. The evening temperature was 104°F.

1-12-31. The inflammatory rash with raised margin extended about eight inches on all sides with definite outline. Innumerable vesicles and bulla big and small containing both clear and turbid serum were formed over the rash area one distinctly seperated from the other. The wound commenced healing up by this time. The lymphatic glands at the left axilla became painful. There was much excruciating burning pain over the rash. The patient was crying with agony for frontal headache and pains. On examination, the throat was seen congested, fauces and tonsils swollen. The patient complained of difficulty of swallowing anything. Throat-wash with antiseptic gargle (E. C. 1 dr to a pint of water) was prescribed. The morning temp. was 102°F. The Steel and Cinchona mixture was continued. 10 c. c Antistreptococcus serum (Erysipelatus) was injected hypodermically. As the patient was very restless this day with the evening temperature 104 and as he was little delirious he was given the following :—

1. R

Calomel	Gr.	℥
Sodli bicarb	gr.	10

Sig-one powder at 9 p.m. followed by a saline mixture.

R

Mag Sulp.	dr.	4
Aqua ad	oz.	1

Stat at 4 a.m. next morning.

2. R

Pot. Bromide	gr.	15
Liqr. Morphine Hydr.	m.	15
Aqua ad	oz.	1

'H.S.

2—12—32. Morning temperature was 102°F. Bowels moved three times this morning with semi-solid and liquid motions. The patient had three hours' sleep by night. The rash with visicles extended downwards and sidewise covering 3/4th part of the whole back. On the front side the rash spread up to the left collar bone.

Treatment :—

1. Intravenous injection of Iodine was given. The aqueous solution of Iodine (Lugol) containing

(1) R

Pot. Iodide	gr.	10
Iodum (pure)	gr.	10
Aqua distill	oz.	1

of this, 4 minims added with 10 c.c of distilled water was intravenously injected.

(2) R

Icthylol	1½ oz.
Glycerine	1½ oz.

mixed together for local application over the rash area covered by Mackintosh.

(3) R

Syrup Glucose	Dr.	1	
Quinine Hydro.	gr.	6	
Tr. Ferri Perchlor	m.	15	
Tr. Nucis Vom.	m.	10	
Liqr. Arsenicalis Hydr.	m.	3	
Spt. Choloroform	m.	15	
Aqua anisi ad	oz.	1	one B.D.

(4) Strong solution of Argenti nitras 40 grs. to an ounce was painted over the healthy skin beyond the spreading edge of the rash for checking its advance by producing local accumulation of Leucocytes. The evening temperature was 105°F.

(5) The Bromide and Morphine mixture was continued as night draught to help sleep.

3—12—31. Morning temperature was 102°F. There was no check to the spreading of the rash. This covered almost the whole of the back and sides up to the mid axillary line. On the front side it came up to the Epiglottis. Over the new rash, belbs and vesicles appeared all throughout and as these were spreading the new regions, the belbs surrounding the margin of the wound over the old rash about eight inches seen absorbed with slight fading of the old rash. The patient was still feeling great discomfort. He had no sleep in the nigt in spite of the sleeping draught. The severe headache and burning pain of the rash made him to toss upon his bed to and fro all the night. Bowels again constipated. The evening temperature was 105°F. There was nocturnal delirium with dyspnoea. The patient could not lie on his back or sides. He had to lie on his chest with very great difficulty. Regarding treatment, same medicines were repeated including the intravenous injection of Iodine. The patient got one hour's drowsy sleep this night.

4—12—31. Angry looking rash with vesicles extended the whole of the back. The old one about the margin of the wound was seen fading and drying up gradually leaving stained and branny disquamation. The morning temperature was 104°F. The patient was drowsy, delirious and apathetic. There was no motion. There were breathing difficulties also, but Heart and Lungs were found normal on examination. Tongue was coated and there was tympanitis all over the abdomen. Urine was scanty and very high coloured. This was also found in normal conditition, except that urine had acid reaction.

Pluse was quite full and bounding.

Treatment :—

1. Hypodermic injection of Antistreptococcus Serum (Polyvelent) 20c.c. followed by Calcium Chloride Gr. 30 B. D., given against Serum sickness.
2. Urotropine—Gr. 10 B.D. was given.
3. Rectum was relieved by a douche.
4. Pot. Bromide and Morphine mixture was continued for sleep. The evening temperature was 105°F. There was sleep for 4 hours this night.

5—12—31. The patient's temperature came down to 101°F this morning. He felt a little better today. His mind was clear. He had one motion in the morning. The rash spread with belbs and involved back of the neck np to the Foramen Magnum with definite raised margin, but not so much angry looking as other days.

Treatment :—

1. Antistreptococcus serum (polyvalent), 20c.c. hypodermically injected.
2. For burning of rash Goulard's lotion was applied.
3. Calcium Chloride repeated.

The evening temperature was 103°F. The patient had copious flow of urine and had a natural sleep. No sleep draught was given.

6—12—31. The morning temperature was 101°F. There was no headache. Rash stopped from spreading. The old rash near the margin of the wound and belbs were dried up. He had two semi-solid motions today. Tongue was clean and moist today. The evening temperature was 101.8°F. Antistreptococcus polyvalent serum 20c.c. was injected as before, followed by Calcium Chloride twice a day and no other medicine given. The patient had good sleep during night.

7—12—31. The patient was quite well. His morning temperature was 100°F. and the evening temperature was 101°F. Serum was not injected today.

8-12-31. Morning temperature was 100°F. The rash almost disappeared. All the vesicles disappeared. 20c.c Antistreptococcus serum (polyvalent) was injected followed by Calcium Chloride as before. The evening temperature was 99°F, as bowels were confined today one dose of Cascara Evacauant dr. 2 was given at night.

9-12-31. The temprature came to normal 98.4°F. There was no fever to-day. The patient was getting on well. No complaint. The rash disquamated in places.

10—12—31 to 15-12-31.—The patient was daily improving. There was no complaint at all.

16-12-31. At night the glands of the left Axilla was inflamed and he again got fever temperature 101°F.

17-12-31. The inflammation of the gland was increased. He got all the febrile symptoms again, as headache, malaise, general depression, heaviness of the bowels, flushing of the face, quick and bounding pulse and high coloured urine.

Treatment was limited to-day with alkaline mixture only containing Pot. citras, Sodii bicarb, Syrup and aqua and application of Antiphlogistine on the inflamed gland.

The morning temperature was 102°F. and the evening temperatur was 103°F.

18-12-31. Morning temperature was 102°F. Light and thin distinct isolated red patches big and small like erythema and patichone appeared all over the body except face. There was intense pain throughout the whole body and joints. The gland in the right armpit was inflamed but the left one subsided. The evening temperature was 104°F. The patient had pallor of the face, prostration, weak pulse, cynosis—about the lips and anxious expression. On examination heart and lungs were found normal.

Treatment :—

1. For joint pains Antiphlogistine was applied.
2. For pains of the body equal parts of Liniment Camphore, Liniment Terebinth and mustard oil mixed together was rubbed over the body.
3. Calcium Chloride gr. 30 B. D. was given.
4. Urotropine Gr. 10 B. D. was given.

19-12-31. The red patches also appeared over the face. The morning temp. was 102'F. The evening temp. 104'F. The other symptoms were as before. There was no sleep. The patient had one hard motion at night. The treatment of yesterday was repeated.

20-12-31. All the symptoms aggravated to-day, and the patient was quite prostrate and looked apathetic. He became so much weak that he was unable to move any of his limbs himself. The whole

face was swollen to-day, tongue coated and dried and it was trembling when protruded. Bowels not moved. Urine was high coloured but found normal on examination. The patient was delirious and sleep deepless. The morning temperature was 102°F and the evening temperature was 104°F.

21-12-31. All the symptoms of yesterday reached maximum intensity to-day. The morning temperature was 103°F. One Saline purge with Mag. Sulp dr. 4 with one ounce of water was given and Utotropine continued. In the evening bowels moved three times with liquid motions. The temperature came down to 101°F in the evening. The patient got natural sleep.

22-12-31. The patient was feeling well, bodily and joint pains, completely subsided to-day. The tongue was clean and appetite was good. The morning temperature was 99°F and the evening was 100°F.

23-12-31. The temperature came to normal. The patient was gradually improving health.

ACCESSORIES OF TREATMENT.

Personal hygiene and comfort of the Patient :—One well qualified and efficient Lady doctor Dr. Miss Gladejs with an assistant qualified Nurse Miss Premrose were entrusted for care and nursing of the patient.

Washing of the head, sponging of the body, care of the clothings and beddings, cleansing of the mouth and nostrils, administration of medicines and diet of the patient all were very skillfully done by them in their share. They attended the patient throughout his illness and when they went out of their duties, got their hands and apparels disinfected everyday.

Diet of the Patient.—During the stage of Pyrexia diet was wholly limited to Spoon diet—(*a*) containing milk diluted with Barley water, (*b*) Sago water, (*c*) Soda water. 2. Whey water, 3. Jug soup, 4. Juices of fruits, *e.g.*, Orange, Bedena, grapes etc. These were given at regular intervals as required.

For relief of tympanitis.—This was relieved by careful regulation of diet. When there was much tympanitis administration of Soup and milk was stopped and only fruit juices and whey-water were given, and hot turpentine stups were applied to the abdomen.

For Pyrexia.—Cold sponging were given under due care on the parts of the body save the rash area.

For sleeplessness and headache.—Head was washed with cold water as required.

For pains in the joints and glands.—Antiphiiogistine was applied there and over them hot-water bags were put to keep the parts more warm and for considerable relief of pain.

For extreme thirst.—Glucose water (liquid Glucose ounce 2, Sodii bicarb, dr. 2 and aqua pint one) in sips were given according to the need of the patient.

Sanitary Precautions ;—

The patient was segregated to one well-ventilated room and kept strictly to bed on a sofa, cloth screens duly soaked in Carbolic lotion (1 in 20) being hung over the doors and windows.

None except the selected doctors, lady doctor, nurse and the persons attending him were allowed there and those who were on duty were only allowed during duty hours. The doctors attending this patient were not allowed to attend any other surgical case or cases of confinement,

DISINFECTION OF THE SICK ROOM.

The house walls three feet from the floor were cleansed with brush and water and then every alternate day were sprayed with E. C. one part, in water hundred and fifty parts till the recovery of the patient.

The Blankets and other woollen clothes used by the patient were disinfected every 3 days by soaking them in Izal lotion (1 in 200) for two hours and then washed, dried and used again.

Other clothes and linen clothings were disinfected in boiled water for ½ hour. No clothings were sent to the Washerman's house without disinfecting them beforehand.

Pieces of cloths and other rags or cotton used for cleansing the mouth, nostrils etc. were burnt.

The sputum vomit and other mouthwash water were received in a tarpainted bucket containing strong Phenyle solution and powdered lime. This bucket was daily emptied twice or thrice as required in a sweeper's reeceptacle for disposal into the trenching ground.

The Shoes in the Sick-room, were disinfected with 1 % formalin solution.

The stands of the Patient's Sofa, the chairs, and other furniture were disinfected with perchloride of Mercury lotion (1 in 500). The pillows and quilt covers were every day disinfected by boiling them in hot water and then cleansed with soap and soda.

Pillows and quilts were disinfected by drying them every day in the bright and hot sun for 6 hours. These were turned over after 3 hours when one side became very hot by the sun's rays.

The floor of the Sick-room everyday was cleansed by moist sweeping with the Perchloride of Mercury lotion (1 in 500). After

half an hour of the sweeping this floor was dried up by dry cloth and then again E.C 1 in 500 was sprinkled. This was done everyday at noon.

To deodorise the sick-room, it was fumigated every morning and evening by burning camphor and resin, Necessary steps were also taken against fly danger or against the entrance of any domestic animals there.

The bath-room was also every day disinfected similarly as the Sick room.

The faecal discharges, urine, and other ablution and wash waters of the sick were disinfected with strong Phenyle and disposed of by the sweeper.

Other sanitary precautions. None with a wound in his or her person amongst relatives or visitors were allowed to enter the Sick-room. None with any vaccinial wound or scabies were allowed in the Sick-room. None was vaccinated against Smallpox in the family of the patient till the infective period was over. Due cleanliness and Hygienic rules in all matters were stictly observed.

The patient being cured of his sickness, *i. e.*, after the 23rd December 31, lest anything should retain infection, the disinfection of his whole premises was done against any further spread of the disease as under.

The floor of all the houses including the sick-room with three feet walls above were cleansed and disinfected with perchloride of Mercury lotion (1 in 500). The whole walls of the houses then were scrubbed and retina washed.

The cooking utensils, feedings cups, glasses, plates etc., were cleansed with water first and then disinfected by soaking them in hot boiled water for ½ an hour.

The wooden and bamboo furniture were disinfected with perchloride of Mercury lotion (1 in 1000). The valuable warm clothes were disinfected with Izal solution (1 in 200) as above.

Leather articles, e.g. Shoes, boots and Suitcases etc. were disinfected with 1% formalin solution. These were sponged by Formalin solution.

The clothings and other garments of cotton and linen were disinfected as before.

The thick beddings and pillows which were not possible to be disinfected with boiled water and as there was no steam disinfector here, were dried and sunned for four consecutive days at least 6 hrs. everyday in the bright sun. These were turned over every 3 hrs. in the sun. The books, pictures and the houses were disinfected by Formaldehyde. This gas was readily generated by pouring Formalin

on the pulvarised Pot. Permaganas crystals (strength 20 ozs. of Formalin, 10 ozs. of Pot. Permaganas for a space of 2000 cubic feet) in an ordinary galvanised iron pail placed on water basin in a room.

The Yards and other places of the premises were swept and cleared of rubbish which were burnt. The phenyle solution was sprinkled all over the places. The doubtful places which may retain infection were thoroughly disinfected with dry powdered lime and strong phenyle.

Latrines, Latrine seats and receptacles were everyday cleansed and washed with water and then disinfected with strong Phenyle by the sweeper.

Water supplies—the well water was disinfected with E. C. (Str. 4 min per two gallons of water).

The drains, urinals, lavatories &c. were disinfected with E. C. 1 in 200 water.

The surroundings of the existing tube-well stand, of the patient's house were also disinfected with E. C. 1 in 200 water.

Our sympathetic Civil Surgeon Dr. H. Lyngdoh, M. B. E., took a very keen interest in this case. He attended on the patient 2/3 times a day as required. Under his guidance and supervision the treatment of the patient and the sanitary precautions as preventive measures against any further spread of the disease were adopted. The patient was almost in a moribund condition and every one here was doubtful about the valuable life of our fellow brother which was so very risky in every moment; but by the sagacity of our kind hearted and popular Civil Surgeon and the co-operative help rendered by his assistants and other private practitioners, the patient has been saved from the imminent danger for which we all are very grateful and indebted to all of them—a debt we cannot repay.

In this connection I invite my collegues and medical brothers to enlighten me the causes of the second attack of this case and what it is—a relapse of the case or Serum anaphylaxis?

NOVEL TREATMENT FOR COBRA BITE.

By

Gopaldas Narsing L.M.P. Nalarna,

(Via) Gangapur, Jaipure State.

On 23-3-1932, a Brahmin lady was bitten on the hand by a Cobra ; she reached the Malarna Dispensary 15 minutes after she had been bitten. Symptoms of poisoning were just beginning to show themselves. The following treatment was carried out :—

Two ligatures, one just above the wrist and another near the insertion of the deltoid muscle, were applied. The site of the bite was incised freely and Potassinm Permangnate crystals were packed into the wound. A number of chickens were collected within ten minutes and were kept ready as part of the treatment. Potassium Permangnate was now removed, and the wound was cleansed and made to bleed freely. The anus of one chicken was then applied to the wound because it has been proved that it has a wonderful power of suction and is, therefore, ideal for drawing out poison from a poisonous wound. The younger the chicken the greater is the power of suction but for all practical purposes a three months old chicken is satisfactory for this purpose. It is easy to handle and on account of its low vitality dies quickly as it absorbs poison. This also confirms the diagnosis as to whether the snake is a poisonous or a non-poisonous one. As soon as one chicken shows abnormal signs and symptoms it is replaced by another and so on. In this particular case eleven chickens were applied within 2½ hours. The last two survived showing that all poison had been removed. The patient made complete recovery.

In connection with this treatment it must be pointed out that it is necessary from time to time to cleanse the wound of coagulated blood and keep it bleeding freely by frequent scratching. The chicken's anus must also be cleansed from time to time. This treatment is of particular value in rural areas where chickens can be procured practically in all cases quickly and without difficulty.

My thanks are due to the Director of Medical Services, Jaipur State, for permission to publish this report.

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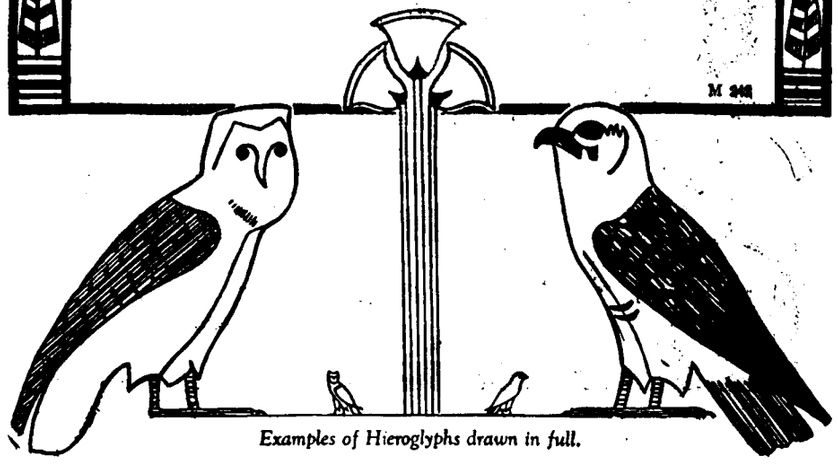

Examples of Hieroglyphs drawn in full.

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6—A

Other less constant changes in the nonprotein nitrogen, inorganic phosphates and lactic acid have also been observed.

The usual treatment is an attempt to combat any infection present and at the same time to re-establish a more normal salt and fluid equilibrium. Water is given by mouth when possible; dextrose, physiologic solution of sodium chloride or buffer solutions are injected intravenously, intraperitoneally and subcutaneously, and blood is also given by tranfusion. To avoid aggravating the condition, food is usually temporarily withheld.

These measures will save a large number of infants. There are, however, a considerable number of cases in which there is only a transient improvement, soon followed by death. Some of these infants undoubtedly die from the original or intercurrent infections; others are moribund from the start and die before adequate treatment can be given. There is still a large number of cases in which there seems to exist some as yet unidentified toxic agent, the action of which apparently persists and prevents recovery even when the infection has subsided and when attempts to maintain acid-base and fluid equilibrium have been continued. Minot, Katherine Dudd and Casparis in a study of this condition published in the *American Journal of Diseases of Children* believe that guonidine or guonidine-like substances may be this toxic agent. But nothing definite is yet known. We are still waiting to know what this mysterious toxic substance is.

Students' Section.

A SCHEME OF CASE TAKING.

BY

DR. K. C. PAUL, M.D., *

Drawn up for the use of students working in the Medical Wards of the Government Royapuram Hospital, Madras.

(Contd. from P. 330, Antiseptic, May, 1932.)

PRESENT STATE (STATUS PRÆSENS):

GENERAL CONDITION:

Mental state and general behaviour of the patient.
Expression and facies.
Body-weight: height; build (habitus); muscular development.
Apparent age.
Nutrition: adiposity or wasting.
Posture: attitude; gait; peculiarities of movement.

* From the Dept of Medicine, Govt. Rayapuram Hospital, Madras.

Skin: colour (pallor, lividity, redness); thickness; dryness or moisture; transparency; eruptions; œdema; pigmentation; scars; striæ.

Other morbid appearances: tumour; clubbing of fingers; dilated or tortuous veins; pulsating arter-ies; dyspnœa.

Temperature: Pulse (rate per minute); Respirations (rate per minute).

Subjective phenomena (symptoms) present at the time of examination (elicited by special interrogation).

HEAD AND NECK.

REGIONAL AND SYSTEMATIC EXAMINATIONS: *

Position of head.
Loss or abnormality of hair.

Skull: Shape as a whole; Condition of fontanelles; Bossing; Bony prominences.

Eyes: Conjunctivæ: pallor or hyperæmia.
Lachrymation.
Sight of each eye.
Fields of vision.
Movements of the eyeball: paralysis of the ocular muscles; nystagmus.
Pupils: size, contour, shape, whether both pupils are equal, re-action to light and to accommodation.
Optic discs and retinæ; condition of the retinal vessels. (Ophthalmoscopic examination).

Nose: Movements of alæ nasi.
Obstruction to one or both nostrils.
Discharge from nose, if any.
Sense of smell.

Ears: Hearing of each. Discharge.

Mouth: Condition of mucosæ of the lips, tongue, cheeks, fauces.
Tonsils and tonsillar glands.
Pharynx: Colour, moisture, ulcers, granulations, mucus.
Movements of lips, tongue and palate.
Tremor of lips and tongue.
Abnormalities of speech.
Sense of taste.
Gums: Swelling, retraction, bleeding, pus.
Teeth: number present, if a child. Number lost, if an adult. Caries, mobility, gingivitis. Hutchinson's teeth.
Fœtor of breath.
Frontal sinuses; maxillary antra (any tenderness?)

* Based mainly on the scheme of Physical Examination given by Geoffrey Bourne in "Medical History and Case Taking."

Neck: Symmetry.
Position and shape.
Swellings: central; lateral; symmetrical.
Movements: voluntary; vascular (arterial or venous); deglutition.
Lymphatic glands.
Tracheal tug.
Cervical rib.

CHEST.

General Inspection: Front and Back.
Shape (use cyrtometer); symmetry; epigastric angle; depressions or bulgings; dilated veins; breasts.
Movements: cardiac; pulmonary; any other.
Mensuration.

HEART AND CIRCULATION.

(CARDIO-VASCULAR SYSTEM.)

Inspection: Shape of præcordium.
Position and extent of cardiac movements: note especially position of the apex-beat.
Pulsations in neck and epigastrium.
Pulsations elsewhere.

Palpation: Position of apex-beat.
Force, extent, and character of cardiac impulse.
Presence of thrills and shocks.

If a thrill is present, determine: its place in the cardiac cycle; where it is best felt. Describe it character.

Percussion: Deep and superficial cardiac dulness.
Retro-sternal dulness (at the level of the third costal cartilage).

Auscultation: Rhythm and quality of the sounds in Mitral, Tricuspid, Aortic and Pulmonary areas, over general surface of the heart, and over the main vessels.
Presence of murmurs in any of the valvular areas.
If a murmur is heard, determine:
Its place in the cardiac cycle;
Its character;
Its position of maximum intensity;
Its direction of propagation;
Effect of change of position and exertion on it.
Presence of friction sounds.

Pulse: **Rate per minute.**
Rhythm.
Speed of pulse-wave under the finger (tardus or celer).
Amplitude.
Equality of force of beats.
Compare the radial pulse on both sides.
Pulse form (dicrotism, anacrotism).

Blood Pressure: Systolic and Diastolic in both arms.

Condition of Peripheral Vessels: fullness, tone, pulsation, character of vessel walls.
Capillary Pulsation.

LUNGS.

(RESPIRATORY SYSTEM:) *

Inspection:
Form of the chest:
General alterations.
Local alterations: flatttening, bulging.
Movements of the chest: Number of respirations per minute.
Type of movement: thoraic, abdominal orabdomino-thoracic.
Rhythm and volume of respirations, and their special characters.
Local movements.
Deficient expansion.
Parts outside the chest: Box of the larynx: its upward and downward movement.
Alæ nasi.
Bulging of the apices in the neck on coughing.
Action of the scaleni and other extraordinary muscles of respiration.

Palpation: Confirm inspection.
Rhonchal fremitus.
Friction fremitus.
Test vocal fremitus in all corresponding areas.

Percussion: Compare the note obtained on percussion (direct and mediate) at corresponding areas on the two sides of the chest, allowing for differences due to anatomical peculiarities of the lungs and the presence of heart, liver, and stomach.

Study the character of the note at different levels. Note the resistance offered to percussion at different areas.

* Adopted from "Wheeler and Jack's Handbook of Medicine" ninth edition, pp. 283 etsq.

Auscultation: Determine at each point during natural and deep respiration the duration of the respiratory sounds, their quality or character, the presence of accompaniments or added sounds, and the vocal resonance. i.e., Type of breathing, Accompaniments, Vocal Resonance.

Map out liver and splenic dulness, measure the extent of the hepatic dulness vertically in the right mid-clavicular line.

If any thoracic swelling is present, define: Its relation to skin, breast, muscles, pleural cavity, vessels, heart, thymus, and thyroid.

Whether it is pulsating or passive.

Whether such pulsation is expansile or transmitted.

AXILLAE AND UPPER EXTREMITIES.

Axillae: Presence of enlarged lymphatic glands.
Presence of other tumours.

Epitrochlear Regions: Presence of enlarged lymphatic glands.

ARMS AND HANDS.

Inspection: Symmertry.

Wasting, General: local (Muscular, Bony).
Swelling: General: Local (in skin, fascia, muscles vessels, bones, joints).
Colour: local or general pallor, lividity, redness.

Palpation: Confirm inspection.
Compare muscular power on both sides.
Test mobility of all joints.
Any tenderness of joints.
Any crepitus at any joint.

ABDOMEN.

Inspection: Shape: lying and standing.

Swelling: General.

Local: Central, Symmetrical, Assymetrical.

Movements: Transmitted; Cardiac; Diaphragmatic; Intra-abdominal, Visceral, Vascular.

Palpation: Abdominal Wall:
Tenderness: Local or general.
Rigidity: local or general.
Elasticity.
Texture.
Liver and Gall-bladder.
Spleen.
Other swellings.
Fluid thrill.

Percussion: Liver dulness.
Over swellings.
Shifting dulness.

Auscultation: Pregnancy: fœtal heart.
Friction over spleen.

Mensuration:

ORGANS OF GENERATION.

Male: Swelling, tenderness, of scrotum, testicle, penis.
Urethral discharge.

Female: Swelling, tenderness, of vulva, vagina, ovaries.
Vaginal discharge.

LEGS AND FEET.

General Appearance: Shape.
Symmetry. (Measure if necessary).
Swelling: General; Local.
Wasting: General; Local.
Enlarged veins.
Ulcers or discolouration.

Movements: Voluntary and involuntary at all joints.

NERVOUS SYSTEM.

(Detailed Scheme for Nerve Cases). *

Higher General and Mental Functions.

Intelligence; Attention; Memory; Emotional state; Reasoning powers; Hallucinations or delusions; Delirium; Coma; Drowsiness: Insomnia.

* Based mainly on Scheme for Routine Examination of nervous cases given in "The Diagnosis of Nervous Diseases," by Sir J. Purves Stewart (6th Ed., 1924).

Fits or other Abnormal Movements :

Fits ; Tremors ; Fibrillary movements ; Chorea ; Tics ; Athetosis; Myoclonus ; Myotonus.

Speech and Articulation : Aphasia. Is the patient right or left handed ?

Cranial Nerves :

1. Smell : Anosmia ; Parosmia.
2. Visual acuity ; Fields of vision to a moving and to a stationary object ; Colour-blindness ; Optic discs : atrophy, neuritis ; Retinal hæmorrhages ; Choroiditis.
3. Pupils : size, shape, reaction to light (direct and consensual) and to accommodation ;
4 & 5. External ocular movements: ptosis ; movements of eyes in all directions ; convergence ; squint : diplopia ; nystagmus.
6. Sensation : Face ; conjunctival, nasal, and buccal mucous membranes ; Taste.
   Motor : Masseters, temporals, pterygoids, etc.
7. Sensory fibres : Cutaneous sensation in external meatus and membrana tympani. Taste in anterior two-thirds of tongue (chorda tympani).
   Motor fibres : Facial muscles, upper and lower ; Nerve to stapedius : Hyperacousis.
8. Hearing : Aerial and bone conduction ; Examination of meatus and tympanic membrane ; Tinnitus.
   Vestibular sensation : Vertigo ; Thermic nystagmus ; Deviation tests.
9. Taste : posterior third of tongue ; Anæsthesia of pharynx ; Difficulty in swallowing, "Curtain" movement of pharyngeal wall.
10. Palate ; Recurrent laryngeal branch (laryngoscopic examination) ; Heart, respiration, digestion.
11. Sterno-mastoid and Trapezius.
12. Tongue (motor).

Sensory Functions :

Subjective sensations : Pain, Headache, Vertigo, Tingling, "Pins and needles", Numbness.

Sensibility to Touch, Pain, Temperature : Anæsthesia, Paræsthesia, Hyperæsthesia.

Tenderness on pressure over nerve-trunks, muscles, skin. Vibration sense with tuning fork.

Joint sense.

Sense of active muscular contraction with different weights.

Stereognosis and recognition of passive movements (three dimensional).

Compass test (two-dimensional).

Spot-finding (uni-dimensional).

Recognition of intensity (between cold and cool, between warm and hot, etc).

Recognition of similarity and difference, (appreciation of weight, size, shape, texture.)

Motor Functions : Paralysis or paresis: in head and neck, upper limbs diaphragm, intercostals, spinal and abdominal muscles, lower limbs. (Monoplegia ; Hemiplegia ; Diplegia; Paraplegia ; Hemiparaplegia ; "Crossed paralysis," etc.)

Co-ordination : Unsteadiness of upper or lower limbs, on voluntary movement ; Finger-nose and heel knee tests; Gait.

Muscular atrophy or hypertrophy.

Muscle-tone ; Rigidity ; Flaccidity ; Hypotonus.

Reflexes : Superficial.

Deep.

Organic.

Trophic Functions : Muscles : Electrical reactions.

Skin : Bullae ; Herpes ; Bed-sores ; Preforating ulcers ; Glossy skin.

Joints and Bones : Arthropathies ; Spontaneous fractures ; Pes cavus.

Cerebro-Spinal Fluid : Naked-eye characters.

Cytology.

Bacteriology.

Chemistry (Albumin, Globulin, Urea Sugar, Chlorides).

Wassermann reaction.

Colloidal gold reaction.

Vegetative Nervous System :

Cervical sympathetic: dilatation of pupil to shade and cocaine ; ciliospinal reflex ; proptosis ; exophthalmos ; enophthalmos ; retraction of upper lid ; pseudo-ptosis; flushing or sweating of face, neck upper extremity.

Angio-neuroses ; Raynaud's disease ; erythromelalgia ; angioneurotic oedema ; localized hyperidrosis or anidrosis ; intermittent claudication.

SPECIAL EXAMINATIONS:

Vaginal examination.
Rectal examination.
Laryngoscopic examination.

LABORATORY AND OTHER INVESTIGATIONS:

URINE: Amount in 24 hours.
Colour.
Deposit.
Smell.
Reaction.
Specific Gravity.
Albumin: estimate quantitatively, if necessary.
Sugar.
Phosphates.
Bile: bile-pigment and bile-acids.
Microscopic: cells, casts, crystals.
(Bacteriology).

BLOOD: Haemoglobin estimation.
Complete blood count (if necessary).
Stained film: for parasites, and for morphological changes.
Chemical and physico-chemical examinations (where necessary).

VOMIT: Amount.
Naked-eye characters.
Smell.
Microscopic appearances.
Chemical analysis.

STOOLS: Number per diem.
Form.
Consistency.
Colour.
Odour.
Reaction to litmus (in infants).
Presence of blood, mucus, parasites, curds,
Microscopic,
Chemical: where necessary.

SPUTUM: Quantity.
Colour.
Odour.
Consisitency.
Presence of blood.
Microscopic appearances (after staining, if necessary).

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Medical News and Notes

MEN WHO HAVE NO EYES; AND YET THEY SEE.

Artificial vision by Electric Current.

(FROM OUR GERMAN CORRESPONDENT.)

It was a strange and pathetic assembly that gathered some evenings ago in the salons of the Vienna Scientific Club to hear a lecture and witness a demonstration by Josef Gartlgruber on "Artificial Sight".

Not the last curious about it was the lecturer himself; an architect, a man who has sacrificed brilliant prospects in his own profession to his fanatical devotion to the cause of the blind, and who for almost two decades has persisted, in the teeth of every sort of discouragement, in conducting experiments to relieve their lot. Latterly he succeeded in finding some helpers, some few who were infected by his own faith and enthusiasm, and whose assistance sufficed to bring the experiments out of obscurity into the light of day. These men were also present on that evening: the blind medical man, Dr. Fritz Guggri, who years ago went totally blind as the result of a motorcar accident, and curiously enough another

architect, who acts as secretary and treasurer of the little association.

The audience presented also some features of interest. One would have expected the medical profession to have been strongly represented; but apparently Viennese medical men resent the incursion of an architect in the sacred sphere of healing, for they shone by their absence. The Austrian Ministry for Social Welfare was represented by a high official and the rest of the audience was composed of wellknown Viennese and of blind people and their friends.

It cannot be said that the lectures were illuminating. Both Herr Gartlgruber and Dr. Guggri spun vague phrases but gave no concrete details. They pleaded that it was impossible to be definite at this stage without risking the future of the whole venture. The only thing to be definitely gathered from these talks was that the treatment reposes on the assumption that the arising of sight pictures is in reality independent of the material organism of the eye, but is the result of the balancing of organo-electric currents. These can be produced independently of the human eye. It is therefore possible to see without eyes.

All this sounded, if comforting for the slightless, very incredible to the detached hearer. It looked as if either Herr Gartlgruber had been carried away by his own fancies out with the sphere of practical reasoning, or as if he were the unconscious tool of publicity-mongers who desired to exploit for their own ends that universal sympathy which men accord to the blind.

The second part of the proceedings in the salons of the Vienna Club proved however of a very different order. Hard facts were presented to the audience, and facts are "chiels that winna ding".

The first fact was that the inventor himself, Gartlgruber, having first had his eyes bound and covered by an absolutely opaque mask, was armed with the apparatus of his own invention, and subjected to the reaction of the electric currents he depends on for his results. The instrument that enables artificial sight is apparently absolutely worthless save through the reaction of said electric currents.

Gartlgruber was able to recognise with apparent ease persons and things in the Salon, describe the movements of those present and even read the headlines of newspapers some of those present produced.

Among the audience were a number of hardened sceptics. One of them, a gentleman who openly voiced his scepticism, was invited to submit to the experiment, but he was at the same time warned that the full results were only to be attained after a number of applications. Seeing without eyes is, according to the inventor, a matter of practice and habit.

The sceptic submitted to the experiment. He was not able to actually see anything in detail or form but he was enabled to distinguish light and darkness and to describe accurately from which direction a source of light suddenly applied, was coming.

Then came the most touching and dramatic feature of the entire evening. In the very front there had been sitting, frail and tense, a number of blind women. They rose one after another and gave moved testimony to the wonders that had been done to them. They told how the first applications of the Gartlgruber apparatus had enabled them to see the light; how with every application their power of vision had strengthened and cleared, how after a certain number of times, they were able to distinguish between various colours.

This recital made a profound impression upon the audience. It was clear that there lay here no conscious deception; that if these poor, pathetic women did deceive, it was entirely unconscious, perhaps the result half of their own dream-wishes, half infection from Gartlgruber's fanatical faith in himself; but at all events they were sincere; they believed with heart and soul that they could now see.—*Transocean Service.*

Gleanings from Medical Press

MEDICINE AND THERAPEUTICS.

Treatment of Dementia Paralytica.—Clarence A. Neymann and Michael T. Koenig, Chicago (*Journal A.M.A.*, May 30, 1931). present the results of a comparative study of therapeutic results obtained in a series of clinically similar cases of dementia paralytica treated with malaria, sodoku, and diathermy. They state that the remission and improvement rate of diathermy exceeds that of malaria and sodoku. The death rate with the diathermy method is nil. Diathermy offers a hope of remission in types of dementia paralytica which seemed to be unamenable to treatment of any kind. The serologic changes produced by any form of hyperpyrexia do not coincide with the clinical changes. Diathermy permits the treatment of cases in which the use of malaria or sodoku would be contraindicated. The use of this method is easily accessible to any physician, trained in the technic. In many cases the treatment can be given ambulantly.—*Texas State Med. Jourl.*

Pertussis: its Early Diagnosis and Rectal Ether Treatment.—W. Ambrose McGee, Richmond, Va. (*Journal A.M.A.*, Sept. 26, 1931), considers white and differential blood counts and isolation of the Bordet-Geugou bacillus as two reliable aids in arriving at an

early diagnosis of pertussis. The latter method furnishes a means of enforcing a scientific quarantine and is a means of reducing the incidence of the disease. While rectal ether is not considered a specific for pertussis and while it may add little to the armamentarium for that disease, its simplicity and its effectiveness from the standpoint of symptomatic relief justify its use until a better form of treatment is sound and proved superior.—*Texas State Journal of Medicine.*

Treatment of Habitual Abortion with Wheat-Germ Oil (Vitamin E).—Vogt-Moller, P., *The Luncet*, 1931, **221** : 182.

The existence of a fat-soluble antisterility vitamin (vitamin E) is accepted and the experimental work leading to this view is briefly summarized. The author's own work is confirmatory of the findings of other investigators. Favourable results have been obtained in the treatment of sterility in cows. The treatment of habitual abortion in women by cod liver oil and Vigantol is contraindicated upon an experimental basis, but the use of vitamin E has given more favourable results. Two cases are cited in which young women who had aborted four and five times respectively were treated with wheat-germ oil from the sixth week of pregnancy to term. Neither had any discoverable cause for the repeated abortions. Both were delivered of normal children after a normal gestation period. There was no actual lack of vitamin-containing foods in the dietary during the abortion periods, but it is suggested that the vitamin requirements of different individuals may have accounted for a relative avitaminosis. It is suggested that vitamin E may be of therapeutic value in habitual abortion.—*C.M.A.J.*

The Striate Syndrome in Dysentery.—L. Karczag (Deut. Med. Woch. February 12th, 1932, p. 249) has recently observed that a large number of dysentery patients (Shiga-Kruse and Y cases, exclusively in men) in the St. Ladislaus Hospital for infectious diseases at Budapest presented a muscular rigidity resembling post-encephalitic Parkinsonism, an attitude similar to katatonia, and an indifferent expression with rare exhibitions of pain or emotion in spite of the suffering which they were undergoing. In many instances also there was a more or less marked tension of the abdominal muscles which in many cases, especially where there were no symptoms of local peritonitis, were regarded not as a viscero-motor reaction, but as evidence of a general extraphramidal increase of tonus. The view that these symptoms were due to disease of the strio-rubral hypothalamic and spinothalamic centres and tracts was confirmed by histological examination of the brain, which revealed liquefaction of the ganglion cells, cortex, and corpus striatum,

increase of neuroglia, and haemorrhages of different sizes. Karczag regards the lesions of the centres and tracts as due to the dysentery toxin.—*Reproduced from B.M.J. 9/4.*

The Appendix in Measles.—M. Herzberg (Journ-Amer. Med. Assoch., January 9th, 1932 P. 139) states that the recent discovery by Warthin of giant cells in the tonsils and pharyngeal mucosa in the prodromal stage of measles has led him to record a smiliar finding in the appendix. His patient was a boy, aged 6 years who was admitted to hospital with symptoms of appendicitis. Laparotomy was performed and an inflamed appendix with a pinkish distal was found ; the omentum was slightly adherent to the caecum showed marked follicular hypertrophy with numerous giant cells in the lymph follicles. The temperature rose to 100° F. the following day, and four days after the operation the rash of measles appeared with Koplik's spots, conjunctivitis, and cough. This case confirms Warthin's suggestion of a distinct pathological change in the lymphatic structures in the prodromal stage of measles, and explains the frequent occurrence of abdominal symptoms related to the appendix in the acute exanthemata.—*Reproduced from B.M.J. 9/4.*

The Dosage of Digitalis.—" Let the medicine be given until it either acts upon the kidneys, the stomach, the pulse, or the bowels let it be stopped on the first appearance of any of these effects." This advice, given by William Withering, who wrote the first detailed study of digitalis 150 years ago, is quoted by H. Gold and A. C. DeGraff (*J. Am. M. Ass.*, 1930, **95** : 1237) in a recent paper on digitalis. They lay strees on its importance and point out that obedience to this ancient precept ensures that the patient is fully digitalized, whereas some methods used by modern physicians result in insufficient or excessive digitalization. They then discuss the vexed question of the dosage necessary to produce the optimum therapeutic effects in patients with auricular fibrillation and cardiac failure. The degree of cardiac failure is the factor of greatest importance in estimating the dose required, and for practical purposes they arbitrarily divide their patients into two groups ; those showing signs of failure when at rest, and those who only develop signs of failure after a certain amount of exertion. In the first group, rapid digitalization with the largest doses that can be tolerated without toxic symptoms gives the best results ; but in the second group such high dosage is usually unneeessary because there is a wide margin between the amount of drug required to produce full therapeutic effects and the amount that can be tolerated without toxic symptoms. In this second group, once the initial effect has been

obtained, a relatively small dose can be continued for daily maintenance with the maximum therapeutic effect. The usual explanation of this is that the smaller doses are necessary in order to maintain the high "effective concentration" of the drug in the body produced by the larger. Gold and DeGraff, however, set forth evidence to show that the "effective concentration" necessary to maintain full therapeutic action is usually much lower than that required at the beginning of treatment. They also point out that there is another effect to be considered after the circulation has been restored—namely, the tendency for improvement to be maintained, irrespective of digitalis treatment. This varies with the different kinds and degrees of cardiac damage, and in their opinion plays a significant part in dosage recommended by different authors is probably due to the fact that the same preparation may vary much in potency. Such variation may sometimes escape detection in the wide margin between the minimum dosage which produces the full effect, and the maximum tolerated without toxic symptoms.—*C.M.A.J.*

Intra Cardiac Injections of Adrenaline:—The power of adrenaline to resucitate the moribund and apparently dead is universally recognised by clinicians. Numerous records have been published to prove that the intravenous or intracardiac injections may revive cardiac contractions when these have become arrested—for example, during anaesthesia; may, in fact, have been so dramatic as to make a general appeal and gain newspaper publicity. Hitherto adrenaline has been to some extent used emperically, but researches have been made by Sir Edward Sharpey—Schafer and W. A. Bain to determine the effects of adrenaline when used to assist recovery from asphyxia. They found that if a cat had been asphyxiated by temporary occulusion of the trechea an intracardiac injection of adrenaline would prove contractions in the heart, even if these had previously ceased. At the same time a swift elevation of blood pressure occurred, and respirations started again. It was further tound that a more rapid result was produced by injection into the myocardium than by injection into the heart cavities, the drug in the latter case having to find its way through the lungs or the aortic and coronary systems before taking effect. Sharpey-Schafer and Bain have examined also the role of artificial respiration and cardiac massage in resusciation from asphyxia. These methods were shown to accelerate recovery if intra-auricular or intra-ventricular injections of adrenaline had been made, and, moreover, they were capable of restoring the action of the heart and the respiratory movements without the aid of adrenaline. This process may be explained on the following basis: during asphyxiation the centre for secretion of adrenalin becomes stimulated, in common with the other bulbar

centres, so that adrenaline which cannot find its way into the arrested circulation accumulates in the suprarenal veins. Artificial respiratory action and massage of the heart produce sufficient movement of the blood to bring this stagnant supply of adrenaline into the heart. Rarely, even the "agony respirations" are sufficient to achieve this result without the help of artificial respiration. Concerning the clinical uses of intra—cardiac adrenaline injections, Bodon is quoted. This investigator recommends the method in the circulatory failure of surgical shock, anaesthesia, electrocution, obstetrical haemorrhage and shock, anaphylaxis, and asphyxia neonatorum. The technic advised by Bodon is as follows: a fine needle about 3 inches long is inserted in the fourth intercostal space just above the fifth rib, and about a fingerbreadth from the edge of the sternum. In this way the internal mammary vessels are avoided and the penetration of the myocardium may be shown by the oscillation of the needle if the heart is still acting. Tne recorded results of intracardiac adrenaline injection are so good that it should, when indications and technique are more generally appreciated, find a wider application than it does today. *The British Medical Journal April 9, 1932.*

RADIOLOGY.

Extract from the Tropical Diseases Bulletin for January 1932, page 8, published by the Bureau of Hygiene and Tropical Diseases, Keppel St, Gower Street, London, W.C.I.

Pillai, (M.J.S.) and Murthi, (K.N.). **Radiological Signs in Cases of Sprue. A Study of 9 Cases.**—*Indian Jl. of Med.* 1931. June, Vol. 12, No. 3. Pp. 116—118.

A very instructive study of the radiographic findings in nine cases of sprue is recorded. The number is small, since among the nine were acute, subacute, chronic and advanced cases, but if the findings are confirmed they will mark an advance in our knowledge of this disease.

In acute cases there was no indication of loss of tone or motility or other change in stomach or intestines. The stomach was empty 2 hours after the barium meal, the hepatic flexure of the colon was reached in 3 hours, and the intestine empty in 6-8 hours. In the subacute, there was slight loss of tone and vigour of peristalsis of the stomach with consequent delay there and again in the caecum and colon, though the small intestine rapidly emptied itself. Retention of barium in spots in the upper part of the caecum is interpreted as evidence of ulceration. Chronic cases gave similar signs but to a great degree; the gastric loss of tone and motility was more marked and the barium lay like a pool in the viscus. The small intestine showed no local patches (ulcers), but the caecum was dilated and the transvere colon in one patient contained a pool of barium "like a hammock." There were diverticula in the colon containing barium. especially in the first part of the caecum, and, in the advanced cases, the hepatic and splenic flexures. The authors explain this by saying that concurrently with atrophy of the mucesa, there is fibrotic change in the muscular tissue, the circular fibres being affected before the longitudinal. In three advanced cases the liver was small,

Where ulceration of the mouth and upper part of the alimentary tract was present there were no signs of ulceration of the lower bowel, and where the barium showed diverticular ulcers of inflammation of the colon and lower bowel there was little or no affection of the mouth and upper part of the alimentary tract. The cases may thus be divided into "descending" and "ascending", according to the authors, who regard the former as oral infection spreading down and associated with achlorhydria, and the latter as travelling from the colonic flexures through the caecum upwards. In the former metabolism is much interfered with and milk is not tolerated; vice versa in the latter. It was noted also that the barium seemed to have a beneficial effect, possibly by changing the acid colonic contents to alkaline and so affecting the bacterial flora, and partly also by coating the tract and lessening absorption of toxins. At all events the character of the stools underwent a change and the patients stated that they felt better. (The nationality of the patients is not stated, nor details of the symptoms, but no doubt is thrown by the authors on the correctness of the diagnosis. No mention is made of any of these patients coming to autopsy, and the inferential structure built up appears to be somewhat larger than the foundation will support at present. Doubtless further investigations will be made on these lines)—*H.H.S.*

Radiotherapy in Cancer of the upper air passages.—Dr. Douglas Harmer in an original article under this heading lays great stress on the early diagnosis of growths in these regions and cities the classical instance of Intrinsic Carcinoma of the larynx with its circumscribed lymphatic network as an example where early diagnosis results in complete cure of the condition. He maintains that Cancers of the upper air passages are all radio-sensitive to some extent—the real difficulty being the delivery of a safe and adequate dose, on account of their depth from the surface. While recognising the limitations of radium therapy, he maintains that the indifferent results obtained by some workers are due to lack of specialisation. Under-dosage or insufficient screening might lead to Fibrosis or partial healing of the growth or even clinical stimulation of the growth, while over dosage or deficient filtration might lead to very painful and indolent ray sores, or necrosis. A great deal of specialisation is necessary to estimate the total dosage, the time through which it is spread, adequate filtiation of the rays, and the manner of irradiation to ensure uniform exposure of the growth.

Syphilitis, alcoholics, and anaemic or seriously debilated patients rarely respond well to radium treatment. Radio-sensitivity of the Cancer is also dependent on the nature of its stroma and different grades, as also on previous treatments which often make it radio-resistent.

After discussing in defail, the post-irradition results in the malignant growths of the different parts of the upper air passages, Dr. Harmer concludes by saying that with careful treatment, palliative relief can be afforded by ray treatment to a large percentage of advanced Cancer with very little danger; that it is safe to treat virulant types of Cancer with rays than with surgery alone, that

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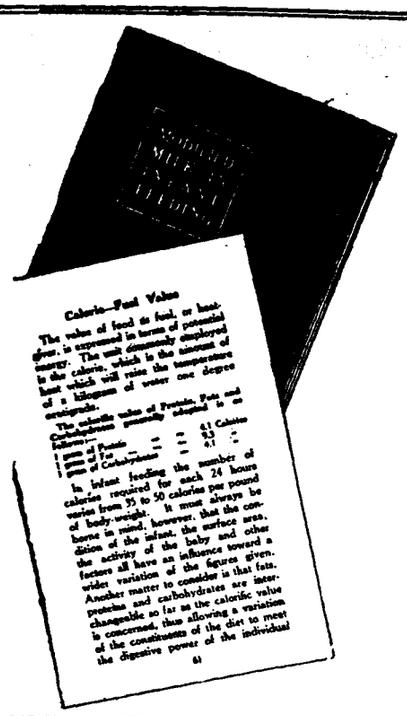

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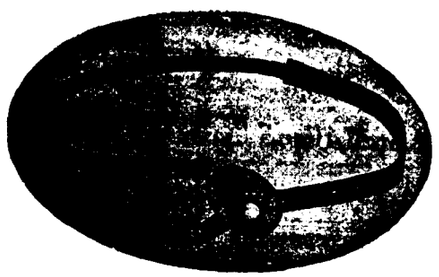

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even early Cancers may confidently be treated by irradiation by experts.—*Lancet, Nov. 14, 1931.*

Correspondence.

THE INDIAN SCIENCE CONGRESS, 1933.

The twentieth Annual Meeting of the Indian Science Congress will be held at Patna from the 2nd to the 7th January, 1933, Lt. Col. A. D. Stewart, I.M.S., Director, All India Institute of Hygiene and Public Health, Calcutta, has been appointed President of the Section of Medical and Veterinary Research.

In view of the fact that a very large number of papers have been received in past years making it impossible to read all of them in the time available, and necessitating the curtailment of discussion on others, the Sectional Committees have been advised to make a careful selection of papers accepted. Authors are requested to take note of the following points:—

(1) Papers on Medical and Veterinary Research *must* be received by the Sectional President, Lt. Col. A. D. Stewart, I.M.S., All India Institute of Hygiene and Public Health, 2I, Chittaranjan Avenue, Calcutta not later than the 1st October, 1932 which is the last date for accepting papers according to the rules.

(2) Only original papers, that is to say, papers which have not already been read or published in the same or similar form, will be accepted.

(3) Not more than two papers will be accepted from any one *contributor.*

(4) Papers must not take more than 20 minutes to be read. It takes 3 minutes to read a page of foolscap intelligibly, apart from diagrams, slides, etc. Papers should not, therefore, exceed 7 pages of typed foolscap.

(5) Papers *must* be accompanied by *3 typed copies* of an *abstract* of the paper. This abstract must not exceed 200 words, and should not contain any formulate or diagrams. *Papers not accompanied by such abstracts will not be accepted.* It is not fair to members of the Congress not to have due notice from the the programme of what a paper is about.

(6) All diagrams, tables, pictures, etc., should be reduced to lantern slides, or enlarged to posters corresponding in type to 6/18 snellen.

(7) Authors should not contribute accounts of their papers to the local lay press. It is hoped that it will be possible to arrange for a daily precis of the proceedings in the Medical and Veterinary Section to be sent to the press officially by the President of the Section.

(8) Workers in Bengal and neighbouring provinces are requested to send their papers before the 21st September 1932. The attention of workers is drawn to the resolution of the Executive

Committee that abstracts of papers submitted after the last date i.e., 1st Octobet 1932 *shall on no account be printed in the advance of abstracts.*

(9) Papers will not bè accepted from individuals who have not paid their subscription for membership. Forms of application for membership can be obtained from the General Secretary, Asiatic Society of Bengal, 1 Park Street, Calcutta.

Will our readers kindly take this notification as the first official intimation with regard to the 1933 Congress? We trust, further, that the members of the medical and veterinary profession in Patna will co-oporate to make the 1933 Congress a successful one.

There are three classes of members of the Indian Science Congress; viz:—

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The Hon. Treasurer, Indian Science Congress, c/o. The Asiatic Society of Bengal, 1 Park St., Calcutta.

Book Reviews.

Anatomical Terminology.—Parts I& II by Dr. N. S. Sahasrabudhe M. S., and Vaidya N. D. Patankar; [Dr. N. S. Sahasrabudhe, opposite Normal School Sitabaldi, Nagpur C. P.]

This is a praiseworthy attempt to find or form suitable Samskritic terms as a first step in the task of translating the standard works on Anatomy of Gray and Cunningham from English to Indian vernaculars. Part I deals with Osteology, Syndesmology, Myology, Angiology and Nerves. Part II deals with Neurology, sense-organs, Splanchnology, Respiratory, Digestive and Urogenital systems, Ductless glands, Regional Anatomy and Histology. In their introduction to Part II, the authors complain that "Some misunderstanding has occurred in some quarters.....We received some letters regarding the usage of the words *Rohini* and *Nila*. We have deliberately taken *Rohini* to be an artery and *Nila* to be a vein. We have altogether omitted the word *Dhamani*. To our minds these words are quite adequate and we have hence used them purely on our own responsibility.....We feel that this terminology should be taken as it is by bodies like Ayurveda Mahamandala." The authors are, of course perfectly entitled to use Ayurvedic terms in any new or novel manner that seems to them best; they are equally entitled to urge that this new usage should be accepted by bodies like the Ayurveda Mahamandal, but they cannot complain they are misunderstood if the Ayurvedist complains in the following manner:—

"According to your usage, the terms *Rohini* (Arteries) and *Nila* (Veins) are adequate to describe all blood carrying or Rakta-vahi (vessels;) therefore you omit the term *Dhamani* altogether; but, according to Ayurvedic Shareeram of Sushruta, they are not adequate; both *Rohini* and *Nila* are only subdivisions of *Sira* which are of four kinds being carriers of Vata, Pitta, Kapha and Rakta (blood); of these, only one variety viz., *Rohini* is Rakta-carrier; but, according to you, both *Rohini* and *Nila* are carriers of Rakta (Blood). This may serve your purpose alright, whatever that may be; but it is at variance with Ayurvedic terminolgy of Sushruta. Similarly, some *Dhamani* vessels also are Rakta-vahi or blood-carriers according to Sushruta, so that according to his teriminology Rakta-vahi vessels are not *all* included under *Sira* alone, some being classed under *Dhamani* also—a category excluded by you as unnecessary, so that Sushruta's *Dhamani* has to go under your *Rohini* or *Nila*. It therefore follows that, from the standpoint of Sushruta, your definition suffers from faults of both Ativyapti and Avyapti. You have created hundreds of new terms in your brochure; and could well have created two more to designate your Arteries and Veins. Why then, take up ancient terms which are certainly not Ayurvedic equivalents of your Artery and Vein and ask us to accept them as though they were? Such novel and extraordinary usage of ancient Ayurvedic terms does not help either the Ayurvedist wishing to study and understand allopathy or the allopathist wishing to study and understand Ayurveda. It only causes confusion. May we not appeal to you to avoid such usages altogether."—*G.S.*

Experimental Tropical typhus in Laboratory Animals.—By R. Lewthwaite, Bulletin No. 3 of 1930. [Inst. for Med. Research F. M. S. Kaula Lumpur.]

This excellent publication of 10 pages on experimental Tropical Typhus in Laboratory Animals by Dr. Raymond Lewthwaite in the form of Bulletin contains the most informative results of the painstaking investigation on Tropical Typhus conducted by the author in the laboratory of the Inst. for Medical Research F. M. S.

The situation with regard to Typhus fever in the Tropics is still under little obscurity. The relation between Tick-Typhus of Col. Megaw and Rocky Mountain spotted fever, Brill's disease 'tropical typhus' as it occurs in the Federated Malay States and the European Variety of Typhus is under discussion. Under such circumstances these valuable laboratory information on Tropical Typhus are most welcome.

The monograph is scientific and descriptive, in simple clear language it contains a number of experimental charts and temperature curves of the animals concerned. The attempts to infect rats, the investigation as to the existence of "Frome inapparente," the histological findings of typhus nodules, the prefence of Weil-Felix Reaction in rabbits are all surely noteworthy, and the reviewer is irrestible in concluding that all these findings tend to bring the

different kinds of Tyhus Fever throughout the world under a big unified group.—*Anil.*

Diseases of the Stomach:—By Hugh Morton, M.D. 1931. Pp. 184 with 8 X-Ray illustrations [Edward Arnold & Co. 41 & 43 Maddox Street, London W. 1.] Price sh. 10/6 net.

This hand book is published with the hope that it may be found useful both to the medical student and practitioner. The book though small when compared to the amount of literature that has sprung within recent years yet the author has attempted to give all the latest information about the disease of the stomach in a clear and concise manner.

The usual text book method has been followed; starting with the inflammatory disease of the stomach, secretory and motor affections are followed in order. Organic diseases, peptic, ulcers deformities, syphilis, tuberculosis and neoplasams are discussed in the chapters following. Treatment of many of these conditions are given and discussed together with the authors own mode of treatment.

We have no hesitation in recommending this book to all the medical students as a complete yet concise monograph on the diseases of the stomach.—*V.C.S.*

Gastro-intestinal Tract.—Wm. Gerry Morgan M. D. 1931. Pp, 259 with 32 illustrations [J. B. Lippincott Company, 16 John Street Adelphi London W. C.] Price 21/-net.

This is one of the volumes belonging to the Everyday Practice series edited by Dr. Harlow Brooks, and is intended to furnish the reader with usable, modern, authoritative monograph on the functional disorders of the Gastro-intestinal tract. The author Dr. William Gerry Morgan, has written this book with the object of making this useful to the general practitioner and at the same time has achieved to give the gist of the leading contributions on the subject aided by his own personal experiences.

There are three sections in this book. After giving a general consideration on the physiology of the alimentary canal, general examination of the patient is given. The section on special examination is practical and will be found very useful.

The various affections of the stomach are taken in order in the next part and are discussed under three distinct heads namely Motor neurosis, Secretary neurosis and Sensory neurosis. Chapter seven deals with the diseases of the small intestine and colon.

Miscellaneous symptoms and conditions are treated in the last chapter of the book.

Illustrative case reports and some of the proved medicaments are also given which enhances the usefulness of the book.

All busy practitioners and those Interested in the diseases of the Gastro-intestinal canal will find this work very helpful in their routine practice.—*V.C.S.*

Surgical Pathology of the Genito Urinary Organs.—Arthur E. Hertzler M. D. 1931. P. p. 286 with 222 illustrations. [J.B. Lippincott Company, 16 John St. Adelpi, London W. C. 2] Price 21/- net.

This book has been written specially for the use of the general practitioner and surgeon, and much of the complications of the specialist has been omitted.

The book is broadly divided into three parts. In the first part the diseases of the External Genitalia in the male are dealt with. Diseases of the Prostrate and Bladder, of the Kidney and Ureter form the subject for the succeeding parts. The text is copiously illustrated and the photograhs reproduced are very good and help a great deal to understand the subject on a sounder basis. A noteworthy feature of the book is the inclusion of literature on the subject dealt in the preceding chapter thus giving an opportunity for the more interested reader for a comprehensive study on the subject.

We have no hesitation in recommending this book to the medical profession.—*V.C.S.*

Preparations and Inventions.

Castophene—*Manufactured by Castophene Manufacturing Co., Post Box. No. 88 Karachi.*

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Quarterly Bulletin of the Health Organisation of the League of Nations.

The following letter from the Secretary, Information Section of the League of Nations, Geneva is published for the information of our readers.—

We are glad to announce the publication of a new periodical entitled the "*Quarterly Bulletin of the Health Organisation of the League of Nations*" both in French and English. This periodical will be devoted to the work which is being done under the auspices of that Organisation. The forthcoming numbers will contain the reports of the technical commissions dealing with the following problems:

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